



THE MACDONALD JOURNAL

NOVEMBER 1988

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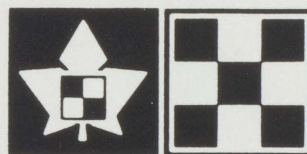
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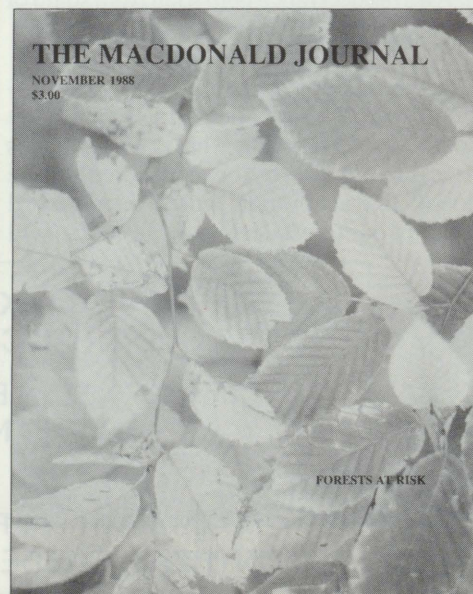
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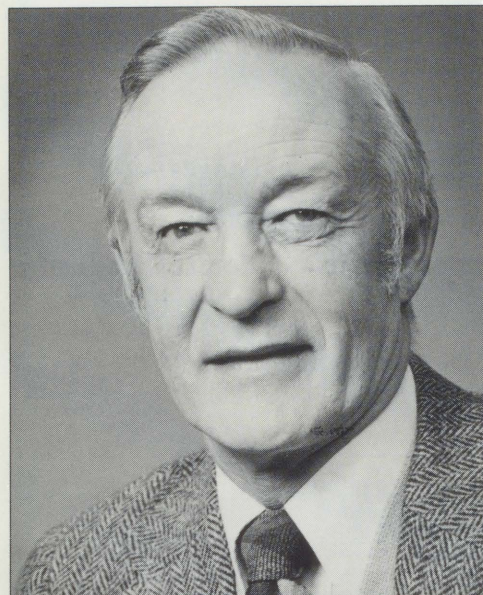
Cover

Many who have marvelled at the splendour of the colours of autumn as seen in this photo by Steve Tinker, are now deeply concerned about the possible demise of much of our forests and woodlots. We have an excellent team of concerned staff in our Department of Renewable Resources who are working diligently in an attempt to understand and to combat some of the problems. Their lead articles are timely and will be read with interest. I would like at this time to thank two men who have for many years been strong supporters and regular contributors to the Journal. They even wrote articles without being asked! Dan MacArthur retired in 1986; Arch Jones has just stepped down. Both appear in this issue and, though enjoying retirement, I hope they will find time to write again.

Guest Editorial:

Another Dubious Battle

by J.D. MacArthur*



* J.D. (Dan) MacArthur, the former Curator of the Morgan Arboretum and Associate Professor in Woodland Resources, retired in December 1986 after being a member of the Macdonald staff for 23 years.

So - how goes the battle against acid rain? Are significant advances being made? Is important ground being gained? Are major breakthroughs expected soon? Have the studies in Canada and the United States produced results that will soon lead to reductions in emissions of pollutants? Answers to these, and similar questions would not encourage us to think that the battle goes well. They would rather lead us to think that it goes dubiously at best.

In eastern Canada it is generally accepted that acid rain from Canadian and United States industries has seriously affected a vast number of northern lakes. In sugar maple country in northeastern North America it is firmly believed by many, but not all, that widespread and serious damage to sugar maples and other hardwoods has been caused, at least in part, by international acid rain.

In southeastern Quebec and northern New England many sugar bush owners who rely on maple products for an important part of their incomes watch the continuing decline

of their trees in quiet desperation. They know that a dead sugar bush cannot be replaced, at least as far as they are concerned.

Despite all this, governments have not reacted with anything like the vigour that the damages to lakes, forests, soils, buildings, and possibly human health should surely justify. Governments seem strangely unconcerned. True there is some investment of funds in certain aspects of research. But the amounts are small and there does not appear to be any coordinated effort to tackle the problem seriously. Perhaps this is simply one more example of the forest being out of sight and therefore out of mind. Hopes are fading that the green of the Shamrock Summit will be transferred to the hardwood forests.

Canadian pleas fall seemingly upon deaf American ears. Some statements from officials of the U.S. Environmental Protection Agency (EPA) suggest that they could apply for membership in the Flat Earth Society. Unfortunately, it is still possible to hold the view that acid rain has not been proved absolutely to be the menace that Canadians and some Americans claim. Given the potential costs, both financial and political, of doing anything to reduce the emission of pollutants it would probably, therefore, be naive to expect much help soon from south of the border.

Short of offering to trade water for emission control there appears to be only one course open to Canada. That is, to do what is necessary to prove "beyond a reasonable doubt" that acid rain is indeed the principal cause of our forest decline. Granted this will

not be easy. It would require discovery of the process whereby acid rain affects the trees. Such knowledge would, or should, satisfy two needs: 1) to convince the EPA that emission control is essential and 2) to permit the development of treatments to restore trees to health or, at the very least, to prevent further decline.

Researchers will face the daunting task of sorting out the single and combined effects on the forest of several factors. Some are natural such as climate, variation in soils and situations, and normal insect and disease effects. Others such as acid rain, forest management, and methods of exploitation are artificial. Some factors can be changed while others such as climate cannot. Insect and disease activity can be controlled, soils and site can be affected by fertilization, methods of management and exploitation can be modified. Acid rain can be reduced and, in theory at least, eliminated.

It is highly unlikely, however, that effective treatments can be developed until research produces a description of how and why the decline of trees and stands occurs. Only then will it be possible to counterattack with effect.

In brief the need is to find out what is causing the damage, to eliminate the cause, if possible, and to develop treatments to restore damaged trees to health.

Since time is short one can only hope that our researchers will receive the resources they need to complete the job before it is too late. The dubious battle is still joined.

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Forestry Education at Macdonald

by Professor A.R.C. Jones
Forestry Section
Department of Renewable Resources

Since 1908 Macdonald College has had a long and illustrious history as a Faculty of Agriculture catering to the needs of rural people and supplying graduates for important agribusiness enterprises.

One of the first graduates of this McGill Faculty was William Harold Brittain, who was a dynamic and outspoken leader of the farming community. He rose to become the Dean of Agriculture at Macdonald College and acting Principal of McGill University. Prior to this he had a distinguished career as Provincial Entomologist in several provinces and as a department head at Macdonald. Dean Brittain had the vision to see the need to add forestry training to the other more traditional farming skills that were being taught at the Ste. Anne de Bellevue campus. Since every farm in eastern Canada contains between one-third and two-thirds of its land area in woodlands, he set out to establish an experimental forest at Macdonald to demonstrate the practical forestry methods of managing the farm woodlot — a very much neglected resource at that time. This was highlighted by his interest in having in one place all the native trees of Canada. With the willing cooperation of the Morgan family of Senneville, the land was acquired, adjoining the college farm and, with his characteristic zeal and energy, he began to collect the missing specimens to add to the 45 native species already growing in the surrounding natural forest. This was the beginning of the Morgan Arboretum and Woodlands.

Following this start, he was eager to point out that farmers had experts in every discipline "from beekeeping to poultry" to advise and assist them with their husbandry. Nowhere was there anyone to help them with the management of that Cinderella of the farm — the woodlot! His next task, therefore, was to find funding to establish a forestry teaching position at the college. This was no easy assignment but funding was eventually obtained through the willing assistance of the forestry industry, spearheaded by the generous support of Vernon E. Johnson, then President of the Canadian International Paper Company (CIP) in Montreal. Dr. Brittain was



Premier Joey Smallwood dedicating a Newfoundland birch seedling at McGill's fall convocation 1967.

able to enlist his interest and the funds were used to establish an academic teaching position. The CIP were particularly generous with their time and funds. In 1961 Fred Harrison took over where Verne left off by becoming the President of the Morgan Arboretum Association and continuing the excellent work started by Brittain, Johnson, and several others: lumberman Garnet Strong and Art Pepler, well known pulp and paper asso-

ciation executive, Drs. Louis Johnson and John Hackney and Mr. Bartlett Morgan. All were keenly interested in promoting and supporting this new venture. The financing of an academic position was more difficult to sell than the support for the more tangible Morgan Arboretum, which was a living, outdoor horticultural and forestry collection of considerable merit and local interest. It was Dean George Dion's enthusiasm that helped to establish the academic position as an integral part of the Faculty of Agriculture with a university budget.

The expansion and maintenance of the arboretum was due to the hard work of foreman Bob Watson and his small crew who had the unenviable task of trying to implement all of Brittain's ideas of landscaping and tree collections in an organized and attractive manner. The work was done, as no obstacle seemed impossible to Bob and his hard-pressed crew who laboured mightily to craft what is now recognized as an outstanding conservation forest on the west end of the island of Montreal. Fieldstone walls were built to contain the woods, trees were planted in specific collections in open areas, and plantations of hardwoods and softwoods were established in old fields to show the possibilities of intensive timber production.



Dr. Brittain (right) shows Fred Harrison, President, Morgan Arboretum Association, and Professor Jones one of the birch trees planted on the Canada Birch Trail during the 1962 annual meeting.

Several hybrid poplar and larch stands have been planted to demonstrate the promising potential of these fast-growing species for quick fibre production for industry and the reclamation of abandoned land.

Another attractive project initiated by Dr. Brittain is the Canada Birch Trail which developed into the Arboretum logo and a fascinating quest. This project began in his fertile mind in the late 50s at the time he was gathering together all the native trees of Canada to complete the Arboreta tree collections. When it came to the native white birch, he found some strange anomalies in leaf shape, catkin numbers, and seed characteristics. These findings set him on a Canada-wide hunt for birch and seed specimens from every province and territory. This material, when grown in Macdonald's greenhouse, was found to have different chromosome numbers. This meant that the white, or paper, birch was not a single species but a cluster of evolutionary similar, but different, species which eventually resulted in a massive birch collection in the arboretum. Besides providing the logo and outstanding teaching and research material, the birch collection also presented an unique opportunity to commemorate the 10 provincial premiers visit to McGill in 1967 to receive honorary degrees



The hosts of the CBC television program "Focus on Forestry" which was an early effort to reach rural populations through the media.

at the spring convocation. They then dedicated the Premiers' Trail by planting a birch tree from their own province to celebrate Canada's centennial year. The Premier's Trail is now one of the many points of interest in the Morgan Arboretum. Other educational, self-guiding trails include the Botanical, the Ecological, and the Forest Management Trails which all receive continuous and heavy use.

From these inspired beginnings the arboretum program expanded to provide accessible facilities for an enlarged teaching effort as the early Department of Woodlot Management became part of the Department of Renewable Resources in 1972. Thus Forestry, Wildlife Biology, Soil and Land Sciences, and Community Resources were combined with both undergraduate and graduate programs to fully occupy its 12 academic staff. At this time John Abbott CEGEP, which shares the Macdonald campus, began to make extensive teaching use of the arboretum for forestry field trips as well as biology, outdoor education, and recreational activities.

Starting with two forestry courses on the practical principles of small forest management for Diploma and undergraduate students, the forestry program expanded with the addition to staff of Professor Dan MacArthur in 1963. New courses included Silviculture, Forest Resources, Forest Recreation Principles and, eventually, a graduate course in Advanced Silviculture. Now, starting in September 1988 with the addition of new staff members, Dr. Jim Fyles and Dr. Benoit Côté, courses on the Forest Ecosystem through the study of plant and soil processes are available to undergraduates and the research program will be expanded.



At the 1988 retirement party McGill's Principal Johnston offers best wishes to two long-time Macdonald staff members: Professor Arch Jones and Rudi Dallenbach.

In addition to the important task of demonstrating and teaching agricultural undergraduate and graduate students the basics of small private forestry a constant effort has been made to reach the interested public and to extend the forestry educational message into the rural communities of the province. An extension course on private forestry methods has been taught every year since 1955 to answer the demands from individual and prospective landowners for information on forest land management and multiple-use forestry. Over the years short courses, manpower training courses, and evening workshops on forestry have been presented in the rural communities to press home the need for better forestry practices which include sugar bush management. Some of these courses involve field trips, annual field days and equipment demonstrations in the Morgan

Arboretum. An annual program focuses on the use of practical equipment that has special relevance to the small private forest and farm woodlot owner. Since 1986 this has become a big item with government and the forest industry cooperating in a massive three-day display of small forestry equipment that will draw more than 10,000 visitors this year. The development of special equipment for harvesting in private forests and farm woodlots is of special importance if the full potential of these lands is to be realized. Their wood harvest is now regarded by government and industry as a valuable source of untapped raw material, which is interesting in view of the depleted condition of most accessible Crown-owned timber limits because of serious over-exploitation during the last decades. At last the small private forest is coming into its own, and the few voices that

were crying in the wilderness for so long are finally being heard. In 1986 the years of educational effort in the promotion of nature conservation, multiple-use forestry, and good forest management were recognized with the presentation to the Morgan Arboretum of the gold medal in the provincial Forestry Merit Competitions with the award of Très Grand Mérite.

The news media, primarily radio and television, have been used widely to describe important forestry practices and markets that can help in the promotion of better management of the private forest resource to meet the burgeoning demand for forest products. In 1962, an ARDA financed, five half-hour bilingual educational television series

Continued on page 24



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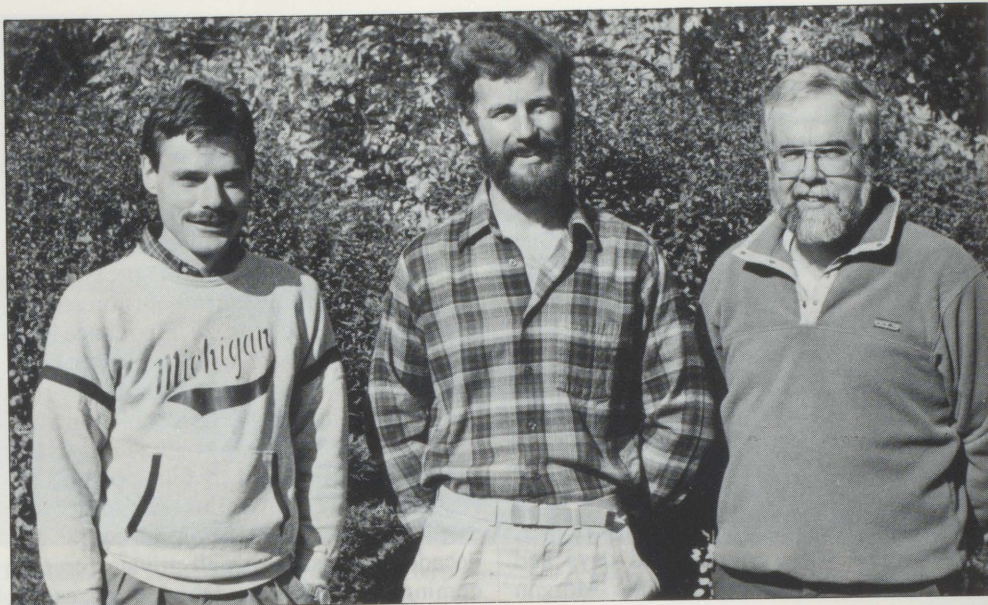
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The Morgan Arboretum: New Faces - New Challenges

by Eric R. Thompson
Managing Director
Morgan Arboretum

The past decade has been one of change for the Morgan Arboretum. In some ways it has been the end of an era as many individuals who played a key role in the development of the arboretum have retired. Beginning with the retirement of Bob Watson, arboretum foreman, 10 years ago and the more recent retirements of Professors Dan MacArthur (1986) and Arch Jones (1988), the arboretum lost the services of three dedicated employees who collectively gave the arboretum over 88 years of service. New situations created by the growing demands on woodlands such as the arboretum by our expanding urban society have also brought about change.

The new staff are therefore faced with the challenge of responding to the demands of these new situations while preserving the original objectives and traditions of the Morgan Arboretum. One of the "new" staff has little trouble relating to arboretum tradition: when Bob Watson retired after 31 years he was replaced by his son John. John grew up in the arboretum, studied in the Diploma Program at Macdonald College, and had his own tree service company before returning to become the arboretum foreman.



New faces to meet the new challenges, l to r, Benoit Côté, Jim Fyles, and Eric Thompson.

My own involvement with the arboretum goes back to my years as a student at Macdonald College. During undergraduate courses taught by Professors MacArthur and Jones, we used the arboretum for laboratory

exercises. Later as a graduate student, I was a research assistant to Jones and MacArthur when they were given a grant by the Canadian Forestry Service to develop a background paper on urban forest management in Canada. Through this research I came to better understand their philosophy of managing urban forests. Many of the management concepts developed at this time are still followed today.

For the past 13 years I have taught in the Forest Technology Program at John Abbott College (the CEGEP which shares the Macdonald campus), and we used the arboretum for many class exercises. My students have done tree identification, systematic botany, forest ecology, and aerial photo interpretation in the arboretum. We have also written multiple use management plans, carried out forest inventories, and analyzed the forest recreation and education trails. These class exercises have provided an opportunity to better appreciate the unique qualities and complex management situations of the Morgan Arboretum.

This 20-year contact with the arboretum led to my appointment as Managing Director on



Nature study: the arboretum is a learning experience for young and old.

a part-time basis in September, 1987. Administrative duties for the arboretum were not assigned to either of the new academic appointments, and I was given a two year mandate as Managing Director while a full-time position was discussed. A decision was made last September to create a full-time position with teaching responsibilities.

The arboretum has collaborated for many years with "le Ministère de l'Énergie et des Ressources" to offer summer nature interpretation programs. About four years ago an attempt was made to offer programs on a year round basis, and these programs were co-ordinated at first by Katheryn Emmett and later by Suzanne Gourvil. Kathy is now a resource policy analyst in the N.W.T., and Suzanne is working as a urban forester for Silvico in Longueuil.

Last spring the Arboretum Association created a full-time position of Nature Interpreter and Coordinator of Public Activities. Nicole Robert was appointed to those positions in June, 1988. For the past three years Nicole was a naturalist/interpreter at the Nature Conservation Centre at McGill's Gault Estate in Mont Saint-Hilaire, and she has worked with Parks Canada at Wood Buffalo and Gros-Morne National Parks. Her academic studies include a degree in Physical Geography and additional studies in ecology, the environment, and journalism.

Two new staff members of the Renewable Resources Department, Dr. Jim Fyles and Dr. Benoit Côté, will be providing management advice for the arboretum. Dr. Fyles is a native of Victoria, B.C., and studied at the University of Victoria where he received degrees in Biology (BSc '76) and Plant Ecology (MSc '80). His doctoral research was on vegetation dynamics, soil development and nutrient recycling in pine and spruce forests in central Alberta, and he received a PhD from the University of Alberta in 1986. Dr. Fyles' career has included work for the government and private industry as well as private consulting and post doctoral studies.

The overall research interests to be pursued in his new position include management of nutrient cycling systems through vegetation control to bring about long-term improvement in site productivity as well as studies on fertilization to increase sugarbush productivity and combat maple decline in Southern Quebec.

Dr. Côté is a native of Quebec City and studied at Laval University where he received degrees in Forest Engineering (BScFE, 1981) and Forest Ecology (PhD, 1986). The topic of his doctoral research was biomass production and cycling of nutrients in mixed plantations of black alder and hybrid poplar. He then became a Postdoctoral Research Associate in the Forestry Department at the University of Illinois where he continued his research on black alder.

Benoit plans to cooperate in the study of maple decline with his colleagues in the Department of Renewable Resources. As a forest engineer he will be providing practical advice on forest management in the arboretum.

Professors Fyles and Côté will also have teaching responsibilities at the undergraduate and graduate level. Dr. Fyles is currently offering an undergraduate course in Forest Ecology and Dr. Côté will be teaching Silviculture in the winter semester. Graduate courses in ecology are currently being developed by both professors.

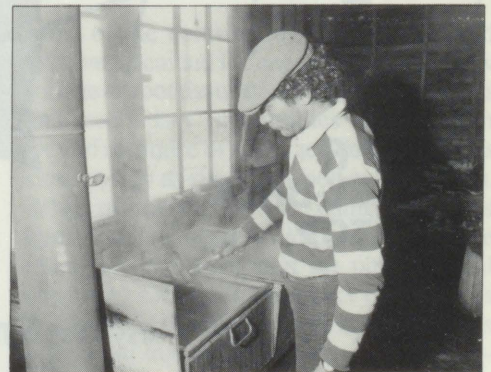
The original management priorities for the arboretum include (1) supporting research areas (2) developing education programs and (3) providing recreation opportunities. The past decade has seen many situations arise as the needs for these programs change.

Much of the farmland that served as a buffer zone around the arboretum has been developed. John Abbott College now has an enrollment of 5,000 students and this has added greatly to academic and recreational demands on the arboretum. Membership in the Arboretum Association has also grown steadily in recent years and is reaching the

point where it may have to be limited unless management procedures are intensified to accommodate this increased use. In 1987 there were 2,800 memberships representing over 7,000 individuals. In addition 7,500 school children are given tours and over 5,000 non members visit the arboretum annually.

In a multiple use area like the arboretum, conflicts arise when non compatible uses are not separated and the increase in these conflicts is proportional to the increase in use. For instance recreational activities like horseback riding, jogging, bicycle riding and walking a dog may interfere with nature study activities requiring peaceful and relatively undisturbed surroundings. In the past the guiding philosophy has been one of integrated use; in other words, all activities take place in the same general area. Current levels of use with the corresponding levels of conflict have made some question this policy. The possibility of having to reduce or restrict certain activities is not particularly favourable.

The public education program has developed greatly over the past decade and was given increased emphasis with the appointment of a full time coordinator of interpretation and public activities. This appointment was based in part on the growing demand for programs which complement the natural sciences curricula of the Quebec Ministry of Education. The arboretum is currently developing a natural sciences program for schools



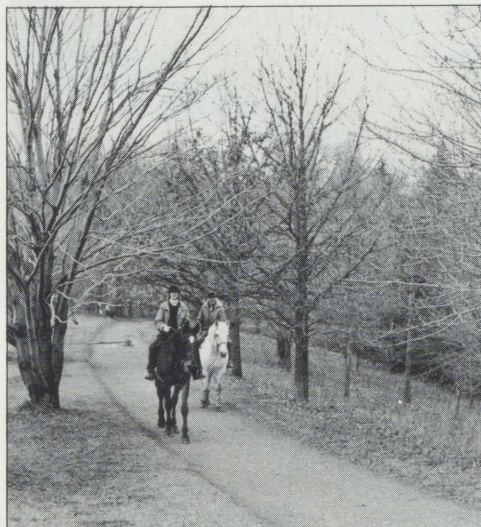
The sap is running and John Watson is hard at work.

The Morgan Arboretum New Faces - New Challenges

with the help of a grant from Le Ministère de l'Énergie et des Ressources.

About eight years ago the volunteers became more formally involved in recreational and educational activities at the arboretum. They gave tours in the spring, summer and fall and held a craft fair. Their activities led to Kathy Emmett and Suzanne Gourvil being hired to coordinate public activities. The volunteers' activities in patrolling and acting as hosts and hostesses at the Conservation Centre have contributed to growing interest as well as growing membership in the arboretum.

While the arboretum is better off than most other parts of Quebec, there is a growing concern about maple decline. The arboretum is cooperating with the staff of the Department of Renewable Resources in carrying out research on forest decline. Research empha-



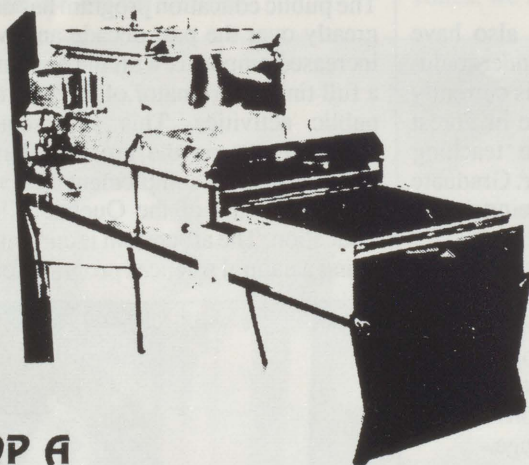
Horseback riding, walking the dog, jogging, research, and educational activities: all must find a place in this multiple-use arboretum.

sis in the arboretum is being placed on combatting maple decline through fertilization.

"New faces: new challenges," includes the challenge of meeting new demands for research areas, nature interpretation facilities, and recreation space and opportunities. While the objectives of the arboretum remain basically the same as those found in the 1952 Letters Patent, specific demands have changed greatly, particularly in the last decade.

Our recent predecessors - Bob Watson, Dan MacArthur and Arch Jones - have shown us by example how to meet this challenge. In 1986 the arboretum was awarded "La médaille d'Or" - Concours de Grand Mérite Forestier" as the managed multiple use forest in Quebec. Among our challenges is that of maintaining the high standards of management set by our predecessors. ■

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Understanding Maple Decline: The Stress Syndrome

by Professor James W. Fyles
Forestry Section
Department of Renewable Resources

Now let's see, losing weight, lack of energy, frequent headaches and backache, irregularities in heart rate. Having difficulty sleeping? I thought so. It looks to me like you've been pushing yourself too hard for the last while and the stress is starting to take its toll on your health.

You're probably right, Doc. It's been one heck of a year. We've already had a couple of bad years and I'm in up to my neck with bank loans. I really needed a good crop this season, but it just never rained. Not a drop until July. And now, when we try to harvest what little made it through the summer, it rains like it will never stop. Joan got a job last spring, working evening shift at the convenience store in town, and I'm doing a little welding on the side so we're making our payments but we never see each other except to argue over the cheque book. Joan's mother moved in to help take care of the kids, which is great, but we don't always get along. I was kind of counting on my oldest boy to help out on the farm after high school, but he's gone off to university - in Calgary, of all places, 3000 miles away. And now, my daughter says she wants to marry some guy we don't even know! Like I say, Doc, it's been one heck of a year.

Stress. It's part of everyone's life in today's world. A little stress helps us to get out of bed in the morning, helps us to work and play with enthusiasm through the day, but excess stress can reduce our productivity, affect our health, and even shorten our lives. And so it is with forests. Researchers developing the theory of stress have concluded that there is a pattern of response which is common to all biological systems - cells, organisms, populations, or ecosystems.¹ In all of these systems stress is a change in the natural, steady-state condition of the system imposed by a change in environment which makes the individual, community, or ecosystem less able to resist or accommodate further change.² The daily life of a forest, like our day-to-day lives, is filled with potential stress factors: financial matters, interpersonal relationships, career decisions in our case, or drought, disease, and insects, among

others, in the case of the forest. Under normal circumstances these stresses can be accommodated without persistent effects but under conditions of high stress, with many factors acting at once, the results may be serious. A small financial setback may cause the collapse of a debt-laden company but may barely be noticed by a business in good financial condition, just as an insect attack may have little effect on a healthy forest but may be devastating to trees growing on infertile soils in a drought year. In both of these situations the event which precipitated collapse might have been of minor significance but for the high level of stress, financial or physiological, already in the system.

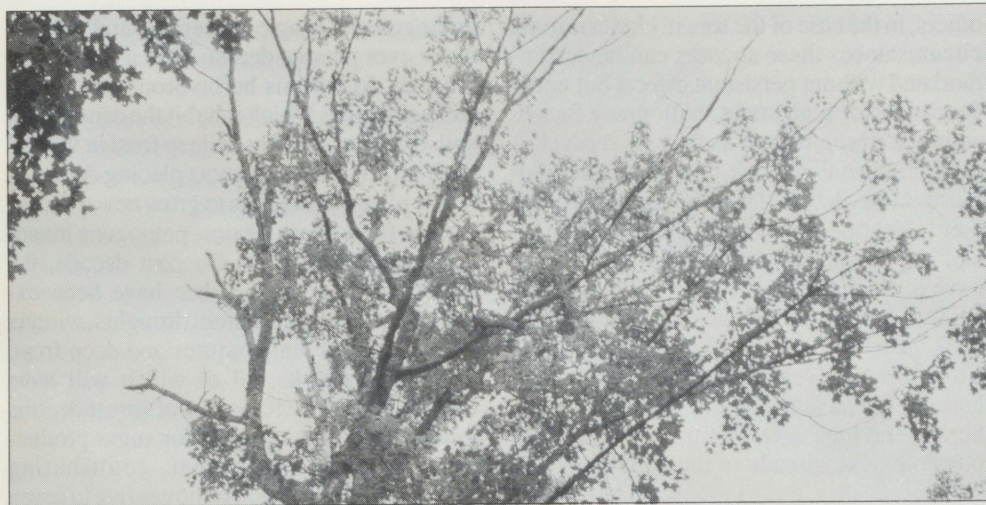
The decline of sugar maple stands in southern Quebec, which has been causing growing concern among maple sugar producers for the last few years, appears to be a classic stress syndrome situation. Intense research on the problem by universities, government, and industry has failed to detect a single underlying cause but has identified a wide range of biotic and abiotic factors which together may have resulted in sufficient stress to the maple ecosystem to cause progressive death of the tree canopy. Similar declines have occurred in ash, birch, maple, and pine stands in various areas in the past and generally have several features in common. Forest declines commonly involve several stress factors acting in concert which can be classified into predisposing, contributing, and inciting categories.³

Predisposing factors are climatic or soil features which produce suboptimal conditions for tree growth. Severe maple decline in southern Quebec was first identified in depressional sites with high water table and cold soils, and on exposed hilltop locations with shallow, infertile soils. Such sites are not considered to be optimal for maple but a long history of sugar bush management which removed other species in preference to maple may have led to the development of maple-dominated stands in these locations.

Contributing factors may include any or all of the conditions which can cause stress in trees.

Pathogenetic fungi, bacteria, and viruses make ever present demands on a plant's defense as do various herbivorous arthropods and nematodes which inhabit the canopy and soil. Summer drought or deep frost in the soil during winter kill fine roots placing demands on the plants' resources to grow new tissue as well as for defense against pathogens invading the dead parts. In the past decade, the forests of southern Quebec have been exposed to a series of summer droughts, winters with abnormal temperatures and deep frost, and insect attacks, all of which will have contributed to the initiation of forest decline in this area. Management for sugar production involves additional contributing stresses. Sap collection removes five to seven per cent of a tree's total sap which represents a small, but possibly significant, loss of sugar which would otherwise have been utilized in the physiological processes of the tree. In addition, the drilling of tap holes constitutes a wound to the tree and triggers an energy-demanding wounding response which eventually partitions the dying wood around the hole from living wood and results in tap hole closure. The use of paraformaldehyde pellets in the tap hole delays the wounding response thus increasing sap flow, but ultimately requires a larger investment of energy by the tree to close the tap hole. Damage to root systems by vehicular traffic and road construction or by grazing animals in a sugar bush is another management factor which places stress on the tree because of the demand to replace killed roots and protect against pathogens.

Most of the contributing factors described involve a demand for energy to produce new foliage or root tissue or specialized phenolics and secondary metabolites involved in wound response or pathogen defense. Plants store energy as starch in wood and root cells. When stimulated by tissue damage starch is hydrolysed to sugar, which acts as a mobile energy source to support the physiological response. An important aspect of the stress syndrome is the depletion of starch reserves within the tree which occurs as energy demand imposed by stress factors exceeds supply from photosynthesis in the canopy. In



The symptoms of branch dieback in this declining maple are obvious, but the underlying cause is more difficult to identify because of complex interactions among stress factors.

a heavily stressed tree, starch reserves are eventually depleted to the point that insufficient energy is available to support responses to defoliation, wounding, or root death. Under these conditions even minor damage may initiate progressive branch death and the symptoms of decline.

The inciting factors, which actually trigger the initiation of decline, may be any of those described as contributing factors. The timing of the inciting event relative to the stress condition of the tree is the primary distinction. Thus, the trigger may be just the same sort of insect attack or drought period that occurred last year and the year before, but this year the tree's condition is such that fatal results may arise where no such effects were previously apparent. The timing and inciting factor involved in initiating decline may differ among very similar stands because of minor differences in site, climate, or pest conditions. Once a tree begins to decline it is vulnerable to all of its pathogen and insect pests so that it is very difficult, by observing a declining stand, to distinguish the primary triggering factor from factors which may have become important secondarily. Most trees in declining maple stands in Quebec are heavily infested with, and probably killed by, the root rot fungus *Armillaria mellea*, but this organism is present in healthy as well as

declining stands, suggesting that the presence of *Armillaria* may exacerbate decline but may not be the ultimate inciting factor.

One factor which has not been discussed but which is at the centre of the maple decline debate is atmospheric pollution. There is no doubt that the areas of Quebec most severely affected by maple decline coincide with areas receiving high levels of imported airborne pollutants and acid precipitation. Based on laboratory and limited field experimentation, it is expected that these pollutants may affect maple forests both by direct structural and physiological damage to foliage and by indirect effects on soils nutrient cycling processes, soil chemistry, and nutrient uptake. To date, however, a direct role of air pollution in maple decline has not been demonstrated. The decisive experiment comparing identical forests with and without chronic pollution is impossible to perform because of the widespread and ubiquitous nature of pollution deposition. In addition, within the context of the stress syndrome it is unlikely that the role of pollution in forest decline will ever be fully understood because of the difficulty in distinguishing contributing and inciting factors and primary and secondary effects.

Well, Doc, I just started feeling better. We got the crop in finally and I started to get some

sleep. My daughter put off her wedding plans, and my son says he'll be able to get home in time to plant in the spring. I have a feeling it will be a good year, and I'm feeling a lot better.

Stress is the combined result of several factors working in concert and the removal of a few, even minor, stress factors often makes the stress level tolerable. In the case of the forest decline stress syndrome, there is nothing that can be done about many predisposing site and climatic factors and, because of its dependence on political will and international diplomacy, pollution control must be put into the "uncontrollable" category as well. However, care with stand management (eg. careful tapping with a sharp drill bit, avoiding overtapping, eliminating paraformaldehyde, reducing traffic and road construction in the bush, eliminating grazing, reducing taps on unhealthy looking trees or after previous summer drought or deep winter frost, avoiding serious stand disturbance such as heavy thinning, judicious use of fertilizer) may tip the stress balance and reduce the risk of decline being initiated by some other factor. The situation may be one of "an ounce of prevention is worth a pound of cure" because once a stand has begun to decline seriously its rehabilitation may be very difficult. In particular, once root rot has become established the problem is no longer one of managing stress but of combating the fungus and may require the removal of all infected trees. Understanding the stress syndrome and managing for a healthy, low stress stand may be the best way to combat maple decline.

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Acid Deposition at High Elevation: A Threat to Forest Viability

by Professor Peter H. Schuepp
Department of Renewable Resources

It would be hard to claim originality nowadays for any article about the possible threat to forest resources from air pollution. Such a link has been suspected for a long time, primarily in Europe, and it is easy to put forward ideas of how forests might be adversely affected by acid deposition. We must remember, however, that forests are living entities of great complexity and their "behaviour" is a result of many internal and external factors which are not usually manifested separately. Because of this fact, the link between forest dieback and any single possible cause is not easily established and we must use our limited research funds to look at all possible ways in which forests might be affected by pollution, including some that might not be immediately obvious.

understood in a general sense as the concentration of a large variety of electrically charged particles, not just hydrogen ions (H^+) used in the chemists' definition of acidity by the well-known pH scale. But even in terms of pH, where every reduction in number by one unit represents an increase in (H^+) concentration by a factor of 10, fog is much more acidic than rain. At a site like Mt. Tremblant, where we do much of our work, the pH in fog may be as low as 2.8 (vinegar would be around 2), while rain is normally above 4. Normal, clean rain would be between 5 and 6.

Elevated wooded sites may thus be looked upon as efficient sampling devices that extract a relatively heavy chemical load from clouds, not to mention the normal input from

"... we must use our limited research funds to look at all possible ways in which forests might be effected by pollution..."

Since that time the routine sampling of fog has been turned over to a private company (Environmental Applications Group) and our involvement continues on the basis of research grants. Among a number of laboratory and field studies that we are currently pursuing, I would like to describe two specific areas of study that are of relevance to the question of how forests at elevated sites may be affected by pollution.

The first of these deals with a phenomenon familiar to skiers at elevated sites such as Mt. Tremblant (850 m). The top of the mountain is often encased in a substantial layer of snow and riming ice, a coating which may stay on the tree for days, weeks or months. Photo 2 shows typical winter deposits on balsam fir trees near the Radio Canada Tower on Pic White, a few hundred metres south of the mountaintop chalet. This means that foliage of such trees is encased, for extended periods, in deposits of super-cooled cloud droplets which froze upon contact with the foliage, mixed with snow, not to mention any dry deposition prior and during the deposition of these coatings. It is clear that such deposits will eventually melt and produce a chemical input into the soil/root/water component of the site and watershed, but it had originally been assumed that no significant direct biochemical action would result from such deposits to the foliage itself due to the "dormancy" of trees under winter conditions.

For the last two winters we have been taking samples of snow and ice at Mt. Tremblant, from balsam fir, choke cherry, and birch trees (a lovely way to spend a few research dollars when the weather and skiing conditions are fine!) and analyzing them for positively and negatively charged particles (ions) in



Photo 1: View of Mt. Tremblant with summit in cloud.

A few years ago it became apparent that a factor of great potential significance for forest resources in areas such as Quebec had been largely overlooked: The fact that large areas are elevated, wooded sites that are in cloud a significant portion of time and that cloud (or fog) droplets are more acidic than raindrops. This is because pollution particles are used by nature as 'nuclei' for condensation of water into drops and fog or cloud droplets are much smaller, and thus less diluted, than raindrops. "Acidity" should be

rain, snow and so-called dry deposition from dry air. As a consequence of this, extensive observational networks have been established in eastern North America, such as the Canadian CHEF (Chemistry of High Elevation Fog) program, operated by the Atmospheric Environment Service of Environment Canada and the U.S. Mountain Cloud Chemistry program. Our own involvement with the CHEF program has been described in a previous (May 1986) edition of this Journal.

Acid Deposition at High Elevation: A Threat to Forest Viability

Professor Hendershot's laboratory. We looked at snow and ice that was in contact (within 1 cm or so) with foliage or tree branches, against that which was not, as well as snow on the ground. We were particularly interested in the concentration of "nutrient cations," such as calcium (Ca^{++}), magnesium (Mg^{++}), and potassium (K^{+}), of which the latter has been shown to correlate most directly with tree growth. This was because of a proposed mechanisms whereby ions deposited from acid deposition (such as H^{+}) would

and from the thickness of foliage per hectare, one can estimate the total loss of nutrients during the winter months. Our estimates have shown that such a loss might be significant for potassium, but probably not for the other elements at the Mt. Tremblant location. The findings of apparent leaching from the deciduous trees (birch and choke cherry) during winter dormancy was a surprise; while total losses per hectare might not be significant due to the relatively small amounts of snow in contact with these trees, such losses might

still represent a nutrient stress for the individual tree.

Another interesting study on possible effects of air pollution on forest viability is done by Professor P. Comtois from the University of Montreal with whom we collaborate. During the springs of 1987 and 1988 he took pollen samples of white and yellow birch at different altitudes on Mt. Tremblant and at Mount Sutton and assessed their viability in his aerobiological laboratory at the University of Montreal. He found no smooth variation with altitude but a sharp decrease in viability at an altitude between 600 and 700 m in all cases. Absolute viability decreased by factors varying from 1.3 to 3.8 and were always statistically significant. The fact that this threshold in pollen viability coincides with the mean cloud base height does not prove that pollen viability is reduced by acid deposition, but it is sufficient cause to suspect such a relationship. As a consequence, studies have now been funded by the Quebec government's CORPAQ agency for us to look into possible links between pollen viability and acid deposition in maple stands affected by dieback symptoms. ■

Table 1.

Measured average ion concentrations in snow and ice deposits at Mt. Tremblant during the winters of 1986-87 and 1987-88.

Sample Type	pH	SO_4^{--}	Ca^{++}	Mg^{++}	K^{+}	Na^{+}
		microequiv. per litre				
Snow/ice on balsam fir	4.41	99.2	31.7	14.8	30.0	21.8
" " " birch trees	4.41	100.8	26.4	9.9	13.2	23.2
" " " choke cherry	4.30	160.7	49.5	15.1	13.1	24.6
Snow deposit on trees but not in actual contact with tree	4.25	72.6	14.5	5.1	3.4	14.1
Snow on the ground	4.33	56.1	18.8	7.5	3.9	13.8

- if a tree were biologically active - enter into the tissue and replace nutrient ions which would then be lost from the foliage through a process called "leaching." We expected to find evidence for leaching, if it was taking place, in elevated concentrations of nutrient ions in the layers of snow and ice that were in contact with foliage. A sample of data on ion concentrations, averaged over the 1986-87 and 1987-88 winters, are shown in Table 1.

Looking at Table 1 we can see strong evidence for the loss of nutrient ions, particularly potassium (K^{+}), from the tree to its snow or ice cover. Snow or ice not in contact with the tree differs very little from that on the ground. The differences in sulfate (SO_4^{--}) is probably due to different degrees of exposure to fog and air in general, which is particularly high for the exposed location and small twig size of choke cherry. From such observations



Photo 2: Typical winter deposits on balsam fir trees near the Radio Canada Tower on Pic White.

Fertilization of Sugar Maples

by Professor William H. Hendershot
Soil and Land Resources
Department of Renewable Resources

Forest decline has had a devastating effect in Europe and eastern North America. In West Germany there is a clear consensus that air pollution has played an important role in the weakening of the trees and thus directly contributing to the decline. Other factors, particularly climate extremes (drought, abnormal freeze or thaw events), have interacted with air pollution to trigger the decline. In Canada we are not yet in a position to identify the factors that have led to the current problem: funds to undertake basic research (as opposed to monitoring) have been very difficult to obtain.

In another paper in this issue (J.W. Fyles - "Understanding Maple Decline: The Stress Syndrome") the importance of the different stress factors has been discussed. In simple terms it can be said that trees in weakened condition are more likely to be killed by subsequent damage caused by climatic events or by insect defoliation. Trees that are healthy have a considerable reserve of energy that they can use to recover from a temporary setback. In this article the use of fertilization will be discussed as a means of improving tree nutrition and increasing the ability of the forest to survive.

Why Do We Need To Fertilize?

Although we don't know their cause, we certainly know that there are some common nutrient deficiencies in sugar maples in Quebec. Further we have been able to demonstrate that the trees will respond to fertilizer applications. Our initial research indicated that about half of the sugar maples that we studied were deficient in potassium (K) while a smaller fraction showed very low levels of calcium (Ca) or magnesium (Mg). Dr. Bernard Bernier, working at Université Laval, has also identified similar deficiencies and, in addition, has found phosphorus (P) deficiencies in some cases.

Currently the evidence is unclear as to why there are nutrient deficiencies in so many sugar groves. One possibility is that the amounts of K, Ca, and Mg in the soil are adequate but that the trees have been weak-

ened to the point that they have difficulty in extracting them. The other possibility is that the soils have slowly lost a part of their reserve of bases due to acidification processes. Under natural conditions there is a gradual loss of K, Ca, and Mg as soils become older. This natural soil acidification is augmented by the influx of acid precipitation, and we hypothesize that over the last 50 years the rate of leaching has been higher than in the past.

As soils acidify and lose bases the trees have more trouble extracting the nutrients they require. The problem is made more severe because the cations K and Mg are less strongly held in the soil than Ca and are lost more rapidly. This leads to imbalances between K and Ca, and Mg and Ca in the soil. When people hear that their soils may have been acidified, they often think that adding lime (CaCO_3) will solve the problem. It will, of course, raise the soil pH but it may weaken the trees by increasing the amount of available Ca and causing a greater imbalance between K and Ca, or Mg and Ca. Proper fertilization of maples will lead to an improved supply of all the nutrients needed for good health.

By now you may be wondering whether you need to fertilize your own trees. Here are some ways of telling whether your trees are healthy. First, stand well back from the tree and look at the crown. Branches growing in sunlight should be full of leaves, right to the ends. Dead twigs all around the outside of the crown indicate that the crown is shrinking, a condition known as dieback, often a precursor to full scale decline. Look to see whether the tree has been damaged by ice storms, lightning, or contact with other trees. Second, stand under the tree near the trunk and look upwards. If the tree is making the best use of its space, the leaves should block out almost all of the sky (ideally less than five per cent of the sky is visible). If there are large openings in the crown that cannot be related to some obvious damage, or if the crown is just very thin, then you should be concerned. Finally, if you think that the tree appears unhealthy, try to identify any obvious external damage

or cause. If the tree receives run-off from an area that receives deicing salt applied to it, then this may be the cause of your problem. Check to see if the trunk has been damaged. Have the roots been covered over by a sidewalk or driveway or buried under landfill? Has the soil been compacted and the roots damaged by vehicles? If any of these problems are identified, they may be the cause of the death of the tree rather than any shortage of nutrients.

Fertilization Strategies

There are two common approaches to fertilization used in agriculture. The large farm operation normally conducts detailed tests to identify the nutrient levels in the soil and then fertilizers are chosen to augment those elements that are found in short supply. Most gardeners, on the other hand, choose a fertilizer that contains the nutrients that the plant needs and adds an ample supply, without regard to how much is already in the soil.

The same two strategies can be applied to the problem of fertilizing sugar maples. Either determine the specific nutrient and pH buffering requirements through foliar analysis or add a general purpose fertilizer that will increase the availability of those nutrients that may be deficient. If only one or two nutrients are required, then the first approach provides a means of achieving the maximum benefit for the smallest cost. The large sugarbush operator will probably be most interested in this approach since the costs associated with the purchase and application of fertilizers are high compared to those of performing foliar analysis.

Owners of small sugarbushes or people interested in improving the health of trees in their lawns are probably more interested in the second approach: a general purpose fertilizer. In this case there are a couple of possible mixtures that should benefit most sugar maples. Maplegro is an organic based fertilizer specifically manufactured by Canagro for use on maples and other trees. This material is made from blood and bone meal enriched with minerals to increase its K and Mg



Figure 1: Unfertilized plot of a sugarbush showing heavy decline.

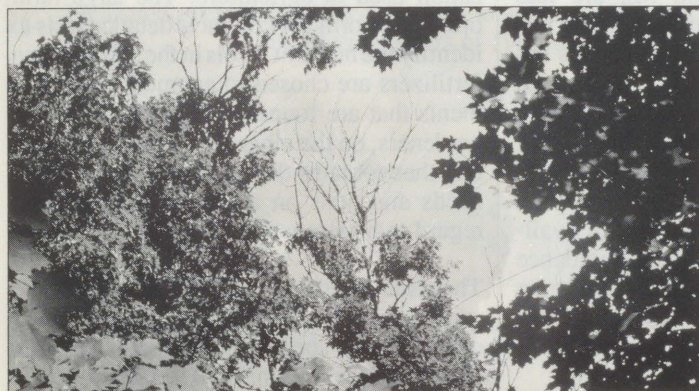
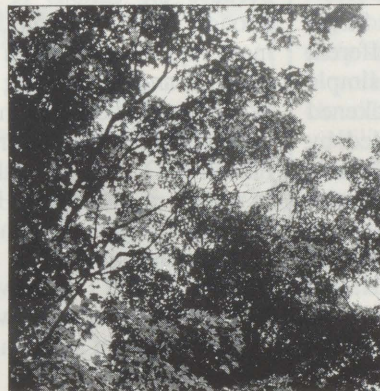


Figure 2: Plot fertilized with base cation mixture containing K, Ca, and Mg. The branches that were already dead are bare, but the rest of the foliage is showing signs of good recovery.



content and to add pH buffering. It has a relatively low concentration of any one nutrient but does contain micronutrients that may be needed by the tree. At Macdonald College we have developed a family of fertilizers, containing mineral sources of nutrients, based on some simple rules regarding the relative amounts of Ca, Mg, and K in the mixture. Tests are still in progress on this approach but I think that it is better to make our thoughts public than wait until all the test results are available. The recipe for one hectare (10,000 m²) is as follows:

As you can see there is no nitrogen (N) source in this material since we do not think that it is required in most cases. Acid rain has already increased the amount of N in the forests and N deficiency is almost certainly not the cause of forest decline.

50 kg of P fertilizer (finely ground rock phosphate or bone meal or triple superphosphate - the last is more acidifying than the first two) 200 kg of K fertilizer (K₂SO₄) is preferred although KCl may be used.

(In some circumstances high levels of Cl in the soil may cause damage.)

75 kg of ordinary, finely ground limestone (not hydrated lime)

75 kg of dolomite.

How Much to Apply

In general it is better to add several light applications rather than one massive one. In our research we usually use **no more than**

400 kg per hectare of any one material. Translated into more easily understood units this means 0.04 kg (40 g) per square metre of surface fertilized. Since the roots of a sugar maple extend roughly to the same distance underground as the branches do above ground, it is easy to estimate the surface that should be fertilized. If the crown of your tree is nine metres in diameter (about 30 feet), then the radius (r) is 4.5 m and the surface area to be treated is $\pi \times r^2$ or $3.14 \times 4.5 \times 4.5 = 63.6 \text{ m}^2$. At the rate mentioned above you would apply 0.04 kg per m² or 2.5 kg. This would be best applied in two doses of 1.25 kg each, one just after the snow melts and the other later in the summer.

Continued on page 22

Book Review: Agroforestry: A decade of development

H.A. Stepler and P.K.R. Nair, editors

(Reviewed by Professor A.R.C. Jones)

This 335-page book produced for the International Council for Research in Agroforestry (ICRAF) in Nairobi celebrates the 10th anniversary of the founding of the Council in 1977. As the Preface states the book is authored by 18 scientists who are or have been active in the development of agroforestry. With the large number of authors some duplication is inevitable and at times there is overlap and a certain lack of continuity.

The book is divided into five sections which include an introduction, perspectives on agroforestry, prominence and importance of agroforestry in selected regions, impact measurement and technology transfer, and research findings and proposals.

In the introduction K.F.S. King the first Director-General of ICRAF, describes the history of the development of agroforestry which dates back to the early 19th century where trees were an integral part of a farming system. The taungya system in many countries included Teak plantings and other tree species with a wide variety of food crops. The establishment of forest plantations was the dominant objective. Today agroforestry is fast becoming recognized as a system which is capable of yielding both wood and food and at the same time of conserving/rehabilitating ecosystems. Stepler, in reviewing a decade of agroforestry development pointed out that population pressures on tropical forests for food and fuelwood were instrumental in the establishment of ICRAF. The bewildering array of agroforestry systems worldwide, the lack of rigorous experimental data on performance, the vast number of multipurpose tree species that can be used and the wide variation in the number of components that can make up an agroforestry system complicate the cataloguing and measurement of outputs of current practices. He further stresses the need for educational and training programs in agroforestry, extension of its technologies, and a massive research agenda. Stepler concludes by warning that agroforestry is not the panacea for the ills of land misuse.

The perspectives chapter looks at the possibilities of agroforestry for sustainable food and ecological security. Swaminathan discusses traditional systems, recent trends, and the potential of agroforestry in Africa. He stresses the need for caution because of the time taken for agroforestry research to yield dependable results and some of the biological and socio-economic constraints. Lundgren outlines some of the important institutional changes that must take place if agroforestry problems and progress are to be addressed and presents his ideal of the kind of land-use institutions needed for the future.

John Spears states the World Bank perspective on agroforestry, suggesting that investing in poverty-oriented projects is a bankable activity that requires no special justification on humanitarian or environmental grounds.

The third section deals with agroforestry case histories in Central America, Africa, and India and examples of different cultivation methods such as trees and shrubs, agrosilvipastoral schemes and home gardens. These last three sections of the book contain some excellent examples of yields and methods of agroforestry and is well referenced. Budowski's chapter in particular covers the recent agroforestry literature in some depth in English and Spanish for Central America.

Section four discusses the economic, social, and sustainability of agroforestry systems, including a plea for increased rigorous soil productivity research on agroforestry methods. Hoskins contrasts agricultural with agroforestry extension systems by stressing the differences between the two as agricultural extension is not tailored to consider the special legal status which trees may have, the time horizon for farmers before tree benefits may be available, etc. Effective promotion and development of agroforestry can help focus on sustainable practices and the needs of the rural poor in face of the effects of a shrinking land base and rapidly increasing population pressures on much of the third world.

Sanchez reviews the state of the art and the constraints in soil-agroforestry relationships concentrating on the implications that appropriate agroforestry systems can improve soil physical properties, maintain soil organic matter, and promote nutrient cycling.

Section five discusses research findings as viewed by five authors. Kang and Wilson consider alley cropping as a promising agroforestry technique, its potential to support a sustainable farming system, and its possibilities to arrest rapid deforestation. Dommergues reviews the role of nitrogen fixation stressing the importance of the choice of tree species (with lists) on the economic and agronomic criteria for a successful agroforestry system. Burley discusses multipurpose benefits of trees and shrubs in 11 land-use systems which include most agroforestry methods. Brewbaker reviews the use and management of *Leucaena* as a multipurpose tree genus for tropical agroforestry during the past decade. This is a fitting finale to the book since it sums up much of the recent literature on agroforestry and describes in some depth the management of this genus and some recent problems (ants and *p. syllid* insects) that threaten the growing prominence of *Leucaena* in advancing agroforestry systems.

Overall a useful contribution to the agroforestry literature which appropriately commemorates an interesting decade in the development of a science relatively new to foresters and agriculturists in the developed world.

Price: \$30.00 U.S., available from International Council for Research in Agroforestry, ICRAF House, off Limuru Road, Gigiri, P.O. Box 30677, Nairobi, Kenya



SOLID MANURE

A resource not to be overlooked

Problematic soil structure, expensive fertilizers and diminishing yields are all good reasons for looking into the advantages of using manure and making the most of this resource. "There is no ideal way to use manure, but several productive ways, depending on the circumstances," says Jacques Petit, teacher of agriculture at the Cégep de Victoriaville.

Manure composting is an example of more being accomplished with less. But you must first ensure, by choosing the proper site for your manure pile, that nothing goes to waste. Too often, runoff carries away a good part of the fertilizing elements of the manure. The customary pyramid shape of a manure pile does not help matters. The centre of the pile acts like a piston that compresses the manure, squeezing out the liquid. A watertight platform or an impermeable foundation that is sloped and has a storage reservoir can remedy the problem. Then you have to decide on the composition of the manure, according to your needs. Bedding quantity is important.

The bedding retains a high carbon/nitrogen ratio. The carbon in the bedding serves to develop a number of microorganisms that, in turn, keep the nitrogen in a usable form. There is sufficient bedding if no liquid escapes from the manure pile. "Farmers may think they can save money by using less bedding, but they fail to consider the loss of fertilizing potential. It is not enough to have a sufficient proportion of organic matter. The matter must be able to produce high quality humus, which is what manure containing straw provides," Mr. Petit explains. This is the way to effectively fight compaction, the principal form of soil deterioration in Québec.

However, to take advantage of the manure's nutrients, the quantity of bedding can be reduced. Use of a watertight pit will permit anaerobic decomposition, i.e. decomposition in the absence of air. The pit has the advantage of preventing any loss. Without bedding, there is less work to be done. The manure is in liquid or semi-liquid form and is therefore easier to handle. It can provide crops with sufficient quantities of minerals, such as potassium, although it will not significantly improve the soil structure.

The type of crop must be considered in determining the time the manure is left to decompose. "Manure containing straw, which has a good carbon/nitrogen ratio, can be spread at any stage of decomposition, provided it is spread on the topsoil and the degree of decomposition is suitable for the crop. Relatively fresh manure may be spread on grassland, but the manure must be well rotted for vegetable and certain cereal crops.

If the manure is left to decompose for two to three months, compost is produced. The time period can be shortened if the manure is spread and left in place. The more often the manure pile is turned, the more rapidly compost is produced. The advantage of compost is that it can be spread at any stage of crop growth. For example, it can provide some crops, such as wheat and carrots, with organic material just before sowing. Compost thereby maintains a good balance between fertilization and preservation of the soil structure. And this balance is important. "The best fertilizing formula in the world is useless if nothing grows in soil that resembles cement", says Mr. Petit jocularly.

Gilles Parent

ON NOURRIT DE
GRANDS
projets

Québec

Mac International

Project in Brazil



During their recent trip to Parana, Brazil, presentations were made to, l to r, Drs. Elliot Block and Umberto Monardes of the Department of Animal Science, Henry Garino, Director of Extension, and Jacques Jalbert, Director of DHAS.

A Technical Cooperation Project has been set up between Macdonald College of McGill University, the University of Parana, Brazil, the Parana Association of Cattle Breeders, and the Canadian International Development Agency (CIDA). As part of this CIDA-financed project, four Macdonald College staff members spent one to two weeks in May 1988, in Parana, Brazil. This project, which is directed by Drs. E. Block and H. Monardes from the Department of Animal Science, has as an objective instituting a modern, computerized milk recording system for the dairy producers of Parana. The project uses our Dairy Herd Analysis Service (DHAS) as a model which will have to be adapted to the needs and realities of dairy production in Brazil. Personnel training and academic

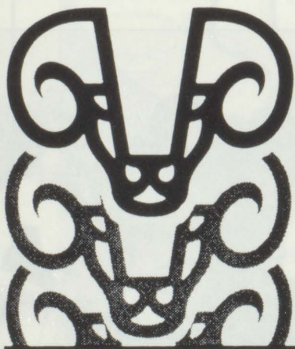
upgrading are also integral objectives of the project.

The Canadian team that visited Brazil was composed of Drs. Block and Monardes, Jacques Jalbert, Director of DHAS, and Henry Garino, Director of Extension. The Macdonald team gave a series of presentations on the importance of genetics, nutrition, and milk recording to several dairy cooperatives of Parana, culminating with presentations of a similar nature at the Animal Congress of the Parana Association of Cattle Breeders. During the second week of their visit, Drs. Block and Monardes and Henry Garino gave courses on Genetics and Nutrition to the staff and graduate students of the University of Parana.

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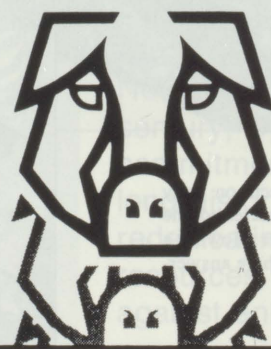
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MSD-AGVET



Fun Fact Fable Fiction

by Ralph H. Eddy
Emeritus Professor
Department of Plant Science



▲ The sweet corn variety trials demonstrated by Ronald Laurin, undergraduate, is one of nine plots in the Horticultural Research Centre, separated to maintain the purity of each "type."

by Linda Jacobs Curtis, University Coordinator
Professional Practice (Stage) in Dietetics



▲ John Argall, Professor Stewart's research assistant, presents the vegetable variety trials and the use of mini-tunnels and mulches for early-season melon production.



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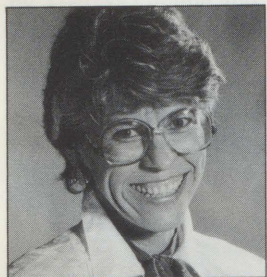
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Issues in Human Nutrition

Seoul Food



by Linda Jacobs Currie, University Coordinator
Professional Practice (Stage) in Dietetics,
School of Dietetics and Human Nutrition

When the national anthem rang through the Olympic gymnasium, and the winning athletes stood on

the podium, how many in attendance thought: Ah! nutrition - the competitive edge?

Many young girls participate in school gym class, in community gymnastic clubs, and in local gymnastic competitions; in the national context, there are thousands. Yet only seven earned the right to represent Canada in the XXIVth Olympiad. What gave them the competitive edge? Credit must first go to the obvious: inherent physical form, family support, excellent coaching, superb effort, and uncounted hours of training. But one final element is earning respect from the athletes, families, and coaches: nutrition!

Though a 14-year-old gymnast may be a 10-year veteran of competitive sport, only for one year has nutritional screening and counselling been afforded this elite athlete. Carol Norrad, a dietitian and Clinical Coordinator for Professional Practice (Stage) in Dietetics in the School of Dietetics and Human Nutrition is completing her first year of association with the provincial and national elite female gymnasts. These are the very few 14-18 year old female gymnasts considered to be "card carrying athletes." To them go the four hours per day training, the boarding

away from home (in some cases), and the drive for achievement on the beam, on the vault, on the mat, on the bars.

At approximately 5'2" 100 pounds, these young athletes do not have highly developed female shapes, especially when you consider the target of 12 per cent body fat (up to 10 per cent less than many pre-pubertal girls). They are a group obsessed with their thighs and bums, afraid of gaining weight, and concerned with the effect of even one extra pound on bone stress when on the apparatus or in the floor exercises.

Carol's personal fascination with sport, coupled with a call to campus seeking a nutrition consultant - well, you couldn't keep her away. So, in her personal time, Carol has developed the seeds of a program for her "Provincial" girls. She saw them once a week at the gym to monitor weight and food habits, to answer their questions about diets and food, and to offer suggestions for growing and glowing.

For those called "National" competitors, Carol developed a "by correspondence" program including food diaries and a life style questionnaire which she reviewed with individuals and the group when they all came together for training camps. The Nationals also gave Carol the opportunity to meet the coaches and to re-inforce the

concepts of general good nutrition specific to the energy, calcium and iron deficit she so often found. And yes, this personal effort has led to an Olympic achievement: Sport Canada has approved a two-part project including 1) physiological testing for aerobic capacity, biochemical parameters, flexibility, etc., and 2) nutrition education and counselling.

What started as a phone call became a project and now it's up to Carol and the elite female gymnasts to prove that it should become a program. Talks about Seoul food are far behind; now they've set their sights on the 1989 world championships in Stuttgart - hoping to prove that the addition of nutrition counselling may give the competitive edge. ■

Continued from page 16

Conclusion

Results are still coming in on the effectiveness of fertilizing maple stands, but we have had positive results using materials rich in K, Ca, and Mg. The three photos in Figure 1 were taken of an unfertilized plot in the Beauce region of Quebec while the three photos in Figure 2 are taken of an adjacent plot fertilized in early June 1987 (the photos were taken in August 1988). The differences due to the treatment are clear: the crown is fuller, leaves are larger and of a better colour, and the trees generally appear healthier after receiving K, Ca, and Mg.

Remember not to over-fertilize! The mixture we are proposing is very concentrated in certain nutrients and even though it contains a balance of K, Ca, Mg, and P, it does not contain any of the other essential plant nutrients. Therefore over-fertilizing can cause nutrient imbalances with other elements as well as causing other problems.



Illustrations by John Starkey

Fun Fact Fable Fiction

by Ralph H. Estey
Emeritus Professor
Department of Plant Science

Ninth Month

The word November is derived from the Latin word "novem" meaning nine. Our November was the ninth month of the old Roman year which began with what is now March. The early Anglo-Saxons referred to this month as the blood-month, probably because it was during this time of the year that they killed animals for their winter meat.

Planetary Lungs

The future for life as we have known it on this earth depends to a very large extent upon the future of the forests - the "lungs" of the planet. Each hectare of the average actively growing forest provides oxygen for about 30 people.

According to the FAO, our planet is losing about 11 million hectares of lush forest every year. This statistic, when considered in conjunction with the accelerating increase in world population, should be cause not only for alarm but for internationally sponsored corrective action that will tend to conserve forests and to slow down the rate of population growth.

Sawmill

The first sawmill in Canada was built on the Saint John River on land that is now within the limits of the present city of Fredericton, New Brunswick.

Christmas Trees

There are several stories or fables about the origin of the Christmas tree as we know it today. Probably the Germans were the first to decorate the tree with stars, angels, gilded nuts, and candy wrapped in colorful papers. Somewhat later they added tinsel and lighted candles. All of this was relatively unknown to the people of Britain until about the time of Charles Dickens, who referred to the Christmas tree as "that German toy."

Widely Distributed

The trembling aspen, which in at least two languages translates as "women's tongue," is the one species of deciduous trees that may be found in every province and territory of Canada. This is closely followed by the choke cherry which is found in all provinces but not in all territories.

Cultural Differences

The cultures that believed in settling all debts before the beginning of a new year didn't have a Christmas near the end of the old one.

The Price was Right

A publisher once went to France
In search of a tale of romance
A Parisian lady
Told a story so shady
That the publisher made an advance

Black Students

There was a time when half the school population of elementary students in Canada were negroes, and that is not a fable. See more about this fact in the next issue of the Journal.

Ancient AIDS

The Book of Numbers in the Old Testament tells of a plague that struck the Israelites after they had consorted with prostitutes. Moses controlled that disease, which, like AIDS, seems to have been sexually transmitted, by killing all potential carriers. It was a drastic but effective method of disease control.

Native Crops

If Canadians had to live only on native crops, their diet would be restricted to a few kinds of berries and maple syrup. All of our major crop plants originated in other regions of the world.

Teamboat

The horsepower that drove the paddlewheel to propel a ferry between Halifax and Dartmouth for 14 years was provided by eight living horses. They were harnessed to iron stanchions extending from a large horizontal cogwheel, and in single file, they walked round and round in a silo-like structure in the middle of the ferry. That "teamboat" made the first of its four daily trips on November 8, 1816.

Wind, Just Wind

The number of motor vehicles on the highways of North America and the number of tornadoes each year are both increasing. As strange as it may appear to the untrained mind, there is a cause-and-effect relationship between these two events. In the northern hemisphere tornadoes spiral counterclockwise. Opposing streams of highway traffic travelling on the right side of the road create counterclockwise spirals of air which tend to initiate cyclones and tornadoes.

Cyclones and tornadoes seldom occur over the British Isles where highway traffic, moving on the left side of the road, sets up clockwise currents of air which dampen any tendency to initiate tornadoes. Thus, it logically follows from this astute observation that the federal government could easily decrease the number of tornadoes in Canada through a simple amendment to the constitution making it mandatory for all motor vehicles to travel on the left side of the highway. It is remarkable how such seemingly insoluble problems associated with natural phenomena often yield to deceptively simple solutions.

Golden Age Humour

The process of growing old is a problem of mind over matter. If you don't mind, it doesn't matter.

Seeking Solutions

A New Joint Venture

by Dr. R.K. Stewart
Associate Dean, Research

Sometimes I get a little depressed when I read about the steady deterioration of our environment and the difficulties being faced by our agricultural producers among others. Sometimes in my most sombre moments I ask myself why do we as human beings have to be in a crisis situation before we will make any moves to solve our environmental problems. The worrying situation with respect to our maple forests discussed elsewhere in The Macdonald Journal and the recent contamination at St. Basile le Grande by PCBs are only a couple of examples of what I am talking about. We can see these accidents waiting to happen all around us, but we seem to have the ability to ignore them, or at least not give them full priority. Then suddenly we are faced with a horror show and there is a great flurry of activity and retribution being dealt out to all and sundry about how this should never have been allowed to happen. My sympathy goes to Clifford Lincoln, Quebec's Minister of the Environment, who to my mind is an honest man trying to do a job with very limited resources. He is on the political hot seat right now because of apparent inaction. Let us be fair to the man. His ministry has been seen by a lot of us as a low priority section and has just not been given the resources to carry through his mandate. Right now, of course, he is being given lots of attention and presumably possible funding. But I ask you: how long do you think it will last? Once the crisis is over, he is probably going to experience the same difficulty in getting access to the necessary resources to do his job. I realize that the tone of this article so far is very pessimistic, but there is some good news as well as bad.

There are people concerned about our environment who frequently apply the spur of conscience to us. There are scientific workers involved in environmental issues, including a number of our own researchers at Macdonald. As a faculty we feel that we are well aware of many of the special problems of environment degradation associated with agriculture. A term which I have bandied about in some of these columns before is sustainable agriculture. This is a subject which has provoked much debate and interest not only in our own faculty but also throughout academic agricultural circles world-wide. Within Macdonald you tend to find little

huddles of professors debating the difference or similarity between organic farming and sustainable agriculture, the legitimacy of the term alternate agriculture, and so on. What we do seem to agree on is the need for a continued effort to have our agricultural methodologies develop along lines which will protect, conserve, and use efficiently, our renewable resources.

A very encouraging development here has been the establishment recently of a joint venture between Agriculture Canada and Macdonald College in the area of sustainable agriculture. This project is funded by Agriculture Canada and has the long-term objective of promoting collaboration between Macdonald staff and provincial and federal scientists in the area of sustainable agriculture. A three-part agenda that we hope to complete between now and next March is as follows:

Our first activity is a series of tours by representatives from Agriculture Canada, provincial governments, and universities to recognize low input farms, i.e., those who are approximating a sustainable agriculture system. The idea is to have the touring group get a better understanding of what these farmers are doing. We wish to have scientists talk to the farmers, identify their needs, and receive suggestions on what they think the priorities in research and education in this area should be. We also hope that the touring group will get exposure to techniques for efficient use of our resources with the idea of reducing negative environmental impact.

Our second major activity will be a two-day workshop at Macdonald College on sustainable agriculture that will involve representatives of federal and provincial departments of agriculture, universities, farmers, and representatives of farming groups concerned with reduced input conversion, organic food industry people, nutritionists, and marketing specialists.

Our third activity is a planning meeting of Agriculture Canada and university staff to develop a detailed plan for establishing a sustainable agriculture research and demonstration site at Macdonald College. We hope that during this planning meeting we will be able to establish critical research and demonstration needs, identify key resource people,

and identify the site and physical resources required for such a demonstration and research facility. The planning meeting will also try to determine the budgetary requirements for a long-term research and demonstration program, potential funding sources, and a strategy for obtaining sustained support for sustainable agriculture at Macdonald College.

Continued from page 7

on private forestry and sugarbush management entitled "Focus on Forestry" was the forerunner of numerous efforts to reach the interested public and the farm population today.

The most recent forestry problem, frequently seen on television, is the forest dieback and decline phenomena, which is of grave concern, in particular to maple syrup producers. The effects of air pollution and acid rain appear to be seriously curtailing the maple syrup harvest and the health of hardwoods in southern Quebec. The impact of pollution on the eastern forests is now receiving a concentrated research effort by Macdonald College scientists to recuperate the maple resource and alleviate the effects of pollution. They are in the forefront of investigators researching the problem which has placed the entire forest resource at risk. In April 1988 the Morgan Arboretum Association, continuing to play its educational role, organized a workshop for more than 300 maple producers which presented the important steps to be taken in managing and fertilizing the sugarbush to combat air pollution which threatens the extinction of the maple industry.

So from these small beginnings, with the Arboretum being used as a demonstration forest for students, private forest and farm woodland owners, the program has expanded to include a broad forestry teaching effort well integrated into the overall spectrum of academic course offerings at Macdonald College.

I hope that the teaching faculty will continue to support the original concept envisioned by Dr. Brittain so that the forestry educational services to the urban and rural communities will, as in the past, play an important role at this institution.

Campus Life

Dr. Donald McQueen Shaver Visits Macdonald

by Hazel M. Clarke

"There's a real world out there" is an expression often heard on campus. It's the world that students will have to face in the not too distant future. Students appreciate staff who have worked in that real world and staff, too, are well aware of the importance of visits to business enterprises and visits from people in the business world. Few come better prepared to give both staff and students a taste of reality than Dr. Donald McQueen Shaver, who, at the invitation of the Department of Agricultural Economics, was a special visitor on our campus earlier this year. Dr. Shaver met with staff, visited various laboratories, gave two well-attended seminars, and met with the students at an open meeting and later on a one-to-one basis where individual students had an opportunity to discuss ideas with him and, in turn, to benefit from his counsel.

A member of the Order of Canada, recipient of the Centennial Medal, and many other high honours, including a DSc from McGill University in 1983, last November Dr. Shaver was inducted into the Canadian Agricultural Hall of Fame. Another honour

for a distinguished Canadian who started his own poultry business at the age of 12 and went on to found Shaver Poultry Breeding Farms Ltd., which now operates in over 90 countries. Dr. Shaver was the youngest officer commanding a Canadian regiment at the time of his active service in Italy, and he credits his war service for later success in the business world. Demobilized in 1946, Dr. Shaver re-established his poultry breeding operation and 10 years later the first exports of poultry breeding stocks were being made from Cambridge, Ontario.

Dr. Shaver was responsible for the development of the white egg layer Starcross 288, the development of a dwarf broiler breeder which consumes 20 per cent less feed than standard varieties, and the development of a red feathered broiler which is in particular demand in the Far East.

Dr. Shaver pioneered sales to the People's Republic of China in the early 60s and has assisted in developing modern poultry industries in such countries as India, Pakistan, Ghana, Burma, and Bangladesh. Throughout

his association with the poultry business, Dr. Shaver insisted on the necessity for and the direction of intensive and continuing programs for the eradication of certain poultry diseases. It was this type of thinking that led to a new research chair at Macdonald College: the Shaver-NSERC Industrial Research Chair in Poultry Biotechnology was established in 1986.

Dr. Shaver's attention also turned to beef. Using well proven genetic principles and applying them to the beef industry just as he had already done so successfully in the poultry industry, he launched a beef breeding program, Shaver Beef Breeding Farms Ltd. This program, using Lincoln Red, Red Devon, and Maine Anjou breeds, culminated in the Shaver Beefblend a "breed" in the early 1980s ready to demonstrate its performance ability as a pure breed and in crosses. Feed efficiency, high carcass yield, docility, fertility, ease of calving, and an outstanding mothering ability are important traits of the Shaver Beefblend and sales of semen, frozen embryos, and cattle around the world once again point to Dr. Shaver's outstanding ability.

In two seminars for staff and students: "Entrepreneurship" and "Business opportunities for Agricultural Students" Dr. Shaver willingly shared his own experiences, his understanding of human nature, and his vast knowledge of business and of people here and abroad. A condensed version of his seminars follows:

Profile of an Entrepreneur

Dr. Shaver said that entrepreneurs are the people who choose not to follow the crowds but to move forward on their own, fulfilling their dreams and creating a better future for themselves. Some start young. Dr. Shaver recalled that his first job was working a paper route for another boy who collected all the money while the rest did the work. He got his own magazine route and hired boys and girls to do the deliveries. As well as pay, there were prizes like marbles. Saturdays he had a job delivering groceries



The Shaver-NSERC Industrial Research Chair in Poultry Biotechnology was established in 1986 and during this visit Dr. Shaver was able to discuss recent research with Dr. Urs Kuhnlein and PhD student Constantinos Karatzas.

"They created a market. They were inventing the future."

from the corner grocer where Dr. Shaver said he learned a very valuable lesson. People shopped at supermarkets when they had money and at the corner grocery when they wanted to run up a bill. When asked for money customers were indignant. He soon realized that the extension of credit without conditions would always lose you friends.

Dr. Shaver said that he never ceases to be amazed by the variety of new business initiatives and the vigour he sees when he travels to Europe, even in Iron Curtain countries. In Hungary, where he has been doing business for 27 years, an organization of 18 farming industry cooperatives is aggressively producing and marketing such diverse products as bird seed, prime beef, leather goods, mineral water, wine, quail eggs, and even a face cream from quail eggs. He cited many other enterprising ideas.

"To succeed in one's own enterprise, Dr. Shaver said, "there must be total dedication - a 16-hour day, 7 days a week. My day began at 6 in the morning feeding chickens, at 7 I was mixing feed and then running a retail business throughout the day. I fed chickens again at night and then delivered feed till about 11 o'clock. That's a long day and you have to like what you're doing. You need an inner drive."

An entrepreneur seeks opportunity, not security; prefers challenges to guarantees, and spends a lot of time on high priority matters. Entrepreneurs are the givers of the modern world.

Dr. Shaver pointed out that Japan has seven times as many manufacturing firms with fewer than 50 employees than does the

United States, and 12 automobile companies compared to three in the U.S. When Sony saw a market for pocketable tape recorders they found that the ones they built were too big for the shirt pockets. What did they do? They went into the manufacturing of shirts with pockets large enough and sold half a million of their first model and 1 1/2 million of the second model. No one was asking for a portable radio when Sony went to the market; they created a market. They were inventing the future.

An entrepreneur observes trends and forecasts new ones. "When I was in Africa and Europe during the war, Dr. Shaver said, "it was clear to me that there was a worldwide market for superior poultry breeding stock, and I was determined to be one of the main suppliers and came home and got at it. Entrepreneurs live in a world of 'can do.' Tell me it can't be done, and I will try to show you how easily it can be done."

Many entrepreneurs tend to make decisions by intuition. Their real strengths are product development, marketing, and production control. Business is based on a strong set of values and usually that set of values is around the idea of being best in what you do.

Entrepreneurs can define risks and seek to minimize them. Dr. Shaver said that when they were shipping day-old chicks around the world by air cargo, there could be no delays. "We could get to any point in the world within 48 hours from Toronto. We chartered aircraft. One of the places we went was Colombia. We would go down with a load of chickens and come back with a load of flowers to sell in the Toronto area. When you are moving something as perishable as baby chicks or flowers, you have to be disciplined, on schedule, and follow safe procedures. We never just chartered one plane. When those chickens started coming out of the incubators, they had to be on the plane, and if the plane broke down or wasn't there on time, we would have been out of luck if there wasn't a back up. We had a back up. It cost us a little more for that standby aircraft but we never ever lost a shipment."

Should You Run Your Own Business?

What qualities are essential? You must like people. The products you produce, and the services you offer must have appeal. You should possess the talent to innovate. There must be successful leadership. You may have to find a harmonious partner with leadership qualities to balance an idea person. This can be a success story of two opposites.

Fortune magazine says "Leadership in business consists of 10 per cent technical direction, 20 per cent administration, 30 per cent employee guidance, and 40 per cent employee motivation. Look at the emphasis on staff. Successful leaders give the people working for them a sense of significance, confidence, and affirmation, the three qualities most workers want from their job. Convey your enthusiasm to others. No other quality attracts good people more than enthusiasm.

Leadership rules include: learn from the past but invest in the future, don't accept responsibility, usurp it. Don't hope for excellence, demand it from yourself and others. Develop a vision of what's to come in the world and in your field.

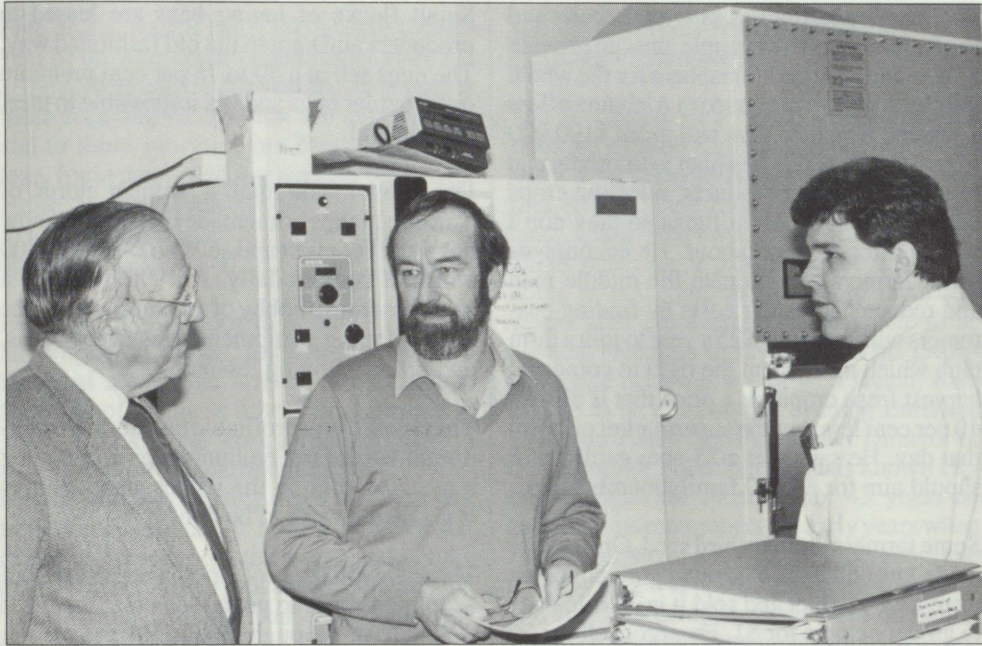
Leaders have courage to question the system and even to shake it up. Correctly preceiving what the market may want is a key to success. As an example, Dr. Shaver told his audience about some young people just south of Calgary who noticed large trailer trucks coming up from California with fruit and vegetables during the winter and going back empty. Knowing there was a shortage of good drinking water in California, they began bottling water and now the trucks go back full of bottled water.

Starting a Business

Young entrepreneurs all share drive, determination, and commitment, qualities often called upon to make up for a lack of financial resources, experience, and contacts.

The Strong Link in the Chain of Success

by Hazel M. Carter



Martin Léonard, right, discusses his post-graduate studies in Animal Science with Drs. Shaver and Kuhnlein.

The first step in starting a business is to see a lawyer and be sure you get a good one. Do you have a trade mark? Is it registered? Get sound insurance protection. Select an insurance agent with a thorough knowledge of all facets concerning insurance. An agent should be a friend, a person who can be trusted, and who is helpful in devoting time and energy. Good financial advice is essential from the beginning. The controller is the key to the success of any new company. Choose a banker who you know has some experience with your type of business. Choose a company logo with care: how does it look when reduced, enlarged, in colour, in black and white? Does it stand out from its competitors? Is it visible at long distances?

Dr. Shaver answered many questions from the staff and students: the impact of free trade on the poultry industry, profit sharing, how to sell abroad, studying versus getting a job, college students as entrepreneurs — his talks were filled with success stories. He mentioned a college student who made \$30,000 a year while studying. One of the things he did was to sell Christmas trees. He was also asked about government involvement in business

and said that he never asked for a nickel of government money but in the past trade commissioners, for example, had been very helpful. He recalled one Christmas day when a chartered aircraft loaded with chicks was stranded in the airport at Brussels during a terrible storm. He called a Canadian official there and told him that he would lose the 35,000 chicks on that plane if they didn't get a particular antibiotic. The official and his two sons went out on Christmas day and dripped every chick's beak into a solution which got into their system and the mortality rate was less than five per cent. He was able to get that kind of help because he wasn't asking for money all the time.

Some Ideas for the Family Farm

At the beginning of this seminar Dr. Shaver said that this is a time of great opportunity to make a start in a small business of one's own, but people must take an active role in marketing the products they produce: that is the real route to success. It costs a lot more today to make a bad decision than it used to. Good market research is needed, but there are opportunities on the family farm in Canada.

Dr. Shaver pointed out that a substantial segment of the market will buy and pay well for quality. There is a heightened awareness of possible adverse effects of some modern production methods on the environment and on general health. There is a whole new attitude towards food and the farming community and agriculture in general have to pay attention. It isn't going to go away. Satisfying the demand for natural foods, offered freshly harvested or prepared, opens up hundreds of opportunities for small, medium sized, and new operators.

Dr. Shaver gave many examples of catering to the demands for certain products - everything from homemade cookies to venison farming. He said that in his own home town a man has a successful business making chocolates. He found a need and catered to it. In New Zealand, a son took over his father's milking herd and, after doing a market survey, sold it and is now growing 150 acres of asparagus and selling it at premium prices with any surplus production going to a soup manufacturer. In answer to new demand from immigrants, two Greek farmers in Australia are growing garlic.

Roadside stands offer great opportunity to go directly to the consumer and some have become quite big and successful. There is an entertainment value for city people who like to go out into the country and find some traditional rural life. This should be remembered.

Dr. Shaver said he saw Hallowe'en displays at roadside stands in Nova Scotia where pumpkins and other items were for sale. There were also rides and other attractions for children. In B.C. at one stand, people were attracted by colourful Easter eggs painted by one of the partners who was Polish. Other ideas for stands might include a display of old implements or a display giving the history of a particular fruit or vegetable. He pointed out that there is profit to be made in house plants and that mums are big sellers. In the vegetable line he suggested greenhouse tomatoes. One man he knew first sold below the cost of production as he wanted to get established in restaurants and supermarkets and get

customers accustomed to his more tender and more expensive tomatoes. In Dr. Shaver's area the demand for hydroponically-grown lettuce cannot be satisfied. It has sold at three times the price of California lettuce.

A student Dr. Shaver knows timed a crop of sweet corn for Civic Holiday weekend. It was worth \$3,000 and he sold out quickly. He had regular customers. He also noticed that the maples in his township were not being tapped. When he asked if he could tap people's trees, he said he would be careful and, if the answer was "yes," he offered them 10 per cent of the syrup. This young man is earning \$30,000 and going to university at the same time.

Dr. Shaver pointed out that farmers' markets are growing in popularity as more people search for fresh produce. Many stands gross in excess of \$1,000 a day. All that is needed is a display case, a cash box, and a scale. Display the produce well, use colour to advantage and display at a convenient height for seeing and touching. Freshness, flavour, and colour are more important than price. Make conversation with customers; this is part of the reason they are at a market rather than in an impersonal supermarket. Show enthusiasm.

In Iowa the wives of six farmers who were growing High Lysine corn decided to experiment and make a breakfast cereal; today they are distributing that cereal in three states as well as Iowa. In Nova Scotia a man has made nearly \$ 1/2 million profit in potato chips and plans to expand. A group of New England farmers are growing a special variety of mushrooms on hardwood. Dwarf fruit trees and other nursery stock are possibilities. Sod farming has a bright future as demands of new construction can't be met.

A group in Ontario brought in guinea fowl from France and this meat is getting recognized in restaurants. Pheasant, quail, and partridge are other possibilities as are geese. People will pay \$35 each for hackles from poultry for fish flies.

There are opportunities in U-pick fruits and vegetables if you like people and can provide a clean and inviting atmosphere for the whole family. A retired professor in Alabama offers a scheme which he says will gross \$100,000 from only 25 acres. His plan is to produce at least 10 high value products, selecting crops that mature at different times so they don't compete for harvest labour. He encourages small farmers to eliminate the middle man and reduce harvesting costs by finding customers willing to pay \$25 a year to join a farm club which gives them the right to come and harvest fresh crops for a price that is always 40 per cent less than the supermarket price on that day. He says that a 25-acre garden plot should aim for a 1,000 family membership.

Some farmers produce bird seed. One farmer made kitty litter from ground corn cobs that were a by-product and sold it in 10 kilo bags to grocery stores for \$1. Escargot sell for 50 cents each and 35 by 25 feet holds 15,000 at an annual cost of about \$200 plus labour. Not a bad sideline!

Lamb, young goats, milking sheep, cheese and yoghurt production: in France they pay 22 cents per litre for cow's milk, 58 cents for goat's milk and 78 cents for sheep's. Angora goats produce 15 to 20 pounds of mohair annually per animal. Venison farming is an expanding business in Britain and New Zealand.

A chain of stores called Nest Eggs started in Detroit and has since spread to other cities.

Small flocks of laying hens are leased to producers and kept in the old fashioned way. The eggs sell at a 50 to 75 per cent premium over regular eggs and it's impossible to meet the demand.

Dr. Shaver said that a woman north of Toronto makes homemade cookies and now has a staff of eight and sells \$6,000 to \$8,000 worth of cookies daily. A friend has built a business from a hobby of spinning fibres. She sells spinning equipment, tans sheep skins, and offers spinning lessons.

There could be a profitable business in reconditioning old farm equipment or in operating a machine shop in the winter when there is less outside work to be done.

These are just some of Dr. Shaver's ideas, but a key point was to get an idea that the other fellow hasn't thought about, investigate the possibilities thoroughly, and you might just find yourself in business!

Possibly the most important part of Dr. Shaver's visit to Macdonald College was the opportunity given to students to meet with him privately for a few minutes to discuss their business ideas. It was a time that he looked forward to and certainly the students were lined up waiting to see him. Do we have budding entrepreneurs at Macdonald right now? Dr. Shaver may be the only one who has that answer, but if any success stories come our way, and we hope they do, we'll try to share them with you.

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The Strong Link in the Chain of Command

by Hazel M. Clarke

Five deans, retired staff, and a large contingent of the Macdonald community gathered at the college earlier this year to pay tribute to those receiving recognition for long service and to those retiring from Macdonald College. Eight deans and just over 43 years later Helen Harrigan was among those leaving Macdonald to pursue her other interests including travelling and art.

Helen, who was born to a farm family in Huntingdon, Quebec, first taught school in the rural areas. She arrived at the college fresh out of business school on February 1, 1945, and started to work for Prof Murray in the Horticulture Department, replacing Edith Hunter who was moving on to another position on the campus. In 1946 she started her career as secretary to the deans and, as the current Dean Roger Buckland pointed out, "Macdonald College has benefited ever since." Her first dean was Sinclair Laird in the Institute of Education. When he retired in 1949 her next dean was David Munro; in 1961 it was Wayne Hall. Professor Munro served on a number of federal and provincial committees and, during Dean Hall's term, she continued to act as secretary for him for the 3 1/2 years he served on the Royal Commission on Education.

The move along the hall from Education to Agriculture came on December 31, 1965, when she started work for Dr. George Dion, Dean of the Faculty of Agriculture. He said that he was not only delighted that she applied for the job but also honoured that she wanted to work with him. When Dr. Dion retired in 1971, Dr. Harold Klinck became Acting Dean for one year. Next was Dr. Blackwood from 1972 to 1977 followed by Dr. Lew Lloyd for the next eight years. Dr. Lloyd said that he enjoyed working with Helen and that her efficiency and loyalty to Macdonald College made his job relatively simple. In June 1985 Dr. Roger Buckland became her eighth dean. He said that the support that Helen had given him had been outstanding and that he had learned the secret of her success: see all, hear all, and say nothing! He said that her capacity for work, her discretion,

and her sensitivity has helped in the smooth running of Macdonald.

The five deans who joined with others in a standing ovation for Helen at the retirement party were: Wayne Hall, George Dion, Harold Klinck, Lew Lloyd, and Roger Buckland. Clark Blackwood had already made travel plans for a trip to Quebec from his home in B.C., and as they were for a few weeks after the event, he was unable to be present. Needless to say, high on his priorities while here was a visit with Helen. Also unable to be present that evening Emeritus Professor Helen Neilson, former Director of the School of Food Science, has known Helen Harrigan for most of her 43 years on campus. She remembers the early years when Helen was part of a fun-loving, energetic, and sports-minded group of people who worked and lived on campus. They went on skiing excursions to St-Jovite in the winter and to a cottage in the Laurentians in the summer.

Professor Neilson pointed out that Helen had a BA and a degree in fine arts, both obtained at Sir George Williams College. In more recent years her hobbies have been travelling to various parts of the world and taking winter cruises, particularly to the West Indies. "Her pleasant voice and ready smile are known to many," Professor Neilson said, "but the depth of her loyalty has been known to only a special few whom she has befriended over the years. Always concerned about her friends, she has ministered with kindness to those who needed her."

Helen has chosen to live in Ottawa where she hopes to continue studying art - when she isn't travelling! On behalf of the many staff and students who have known, admired, and respected you during your unbeatable achievement of being secretary to eight deans over more than 43 years, we will miss you, Helen, but wish you well.



Special guests at the retirement party where Helen Harrigan was honoured were, l to r, Elaine McDonald, former Professor of Music Education, Faculty of Education and now in Baytown, Texas, Professor Jennifer Wall, Physical Education, Faculty of Education, Professor Dorothy Nicol, Physical Education, Faculty of Education, Mrs. Irene (Michalski) Ryan, former dietitian at Glenaladale, now living in Ottawa, and Helen Harrigan.

Reunion '88

A GATHERING OF THE CLAN

Macdonald College opened wide its doors and welcomed over 300 graduates and guests to this year's Reunion on Saturday, October 1, 1988. The previous evening's class parties were a perfect start to a weekend of renewed friendships and fond memories of university days.

The early risers had the chance to browse around the many departmental display booths in the Macdonald Stewart Building or savour quieter moments over a cup of coffee and a muffin lavishly served by two Macdonald students, Joyce Healey and Nancy Lamothe.

"The Future is in Our Genes," a seminar given by Professor Jeffrey Turner early Saturday morning generated a great deal of interest. Dr. Turner spoke to graduates about some of the exciting research programs in the Department of Animal Science and how molecular genetics and its application to animal science holds great promise, not only for animal production but for human medicine as well.

At a second seminar entitled "New Frontiers in Nutrition," Professor Kristine Koski gave graduates a most interesting overview of the developments taking place in the School of Dietetics and Human Nutrition. She also outlined the many research projects being addressed today by several new dynamic members on staff.

Given the time constraints both seminars could only whet the appetite of participants but the response was overwhelmingly positive!

The day's activities also included tours of the greenhouses offered by Christine Rafuse and an open house visit to the Biopesticides Research Laboratory courtesy of the Director, Professor Alan Watson. The Library remained opened for the day giving graduates a first-hand viewing of the new on-line catalogue system in operation. Among the afternoon activities were tours of the new

Cattle Teaching and Research Facility and Stewart Hall, the former women's residence. Without a doubt, the Macdonald spirit was evident in the large number of staff and students on hand to welcome graduates and provide information on Macdonald.

THE MACDONALD LUNCHEON

Macdonald graduates, spouses, friends, and staff gathered together in the Centennial Centre Ballroom to celebrate another successful Reunion. The luncheon ceremonies were opened by the President of the Macdonald Branch of the McGill Graduates' Society, Jean McHarg, BSc(HEC)'60, who extended a warm welcome to all in attendance and announced two remarkable achievements. The first honoured Kay (Munn) Robertson, BHS'38, for having travelled from as far away as the world down under - Australia! The second was a tribute to Eric Burnell-Jones, BSc(Agr)'38, for his efforts in class activities, including the organization of a special class gift to the college. The program continued with William C. Shipley, BSc(Agr)'48, being called upon to say grace. Subsequently, Dean Roger Buckland, BSc(Agr)'63, toasted the 50th and 25th anniversary classes - a truly rare and memorable occasion for the Dean to honour his own class. Byron E. Beeler, BSc(Agr)'58, responded with a sincere and very notable toast to Macdonald College.

Anniversary Presentations

As coffee and dessert were being served, Dean Buckland presented each member of the Class of '38 with a commemorative pin marking their 50th anniversary. Joan (Hollis) Kool, BSc(HEC)'63, and Bob Farr, BSc(Agr)'63, accepted special mementos on behalf of the 25th Reunion year class.

Honour Shield

Finally the long-awaited time came to announce the winner of the 1988 Honour Shield competition awarded to the class with the best registered graduate participation. The Class of '43 took the honour of first place with 44 per cent of the graduates in atten-

dance. The Classes of '68 and '63 followed second and third respectively. Trinkie (Hooker) Coffin, BSc(HEC)'62, Reunion '88 Chairman, was asked to come forward and present Bob Orr, BSc(Agr)'43, with the Honour Shield. Sincere thanks were extended to all chairmen for their efforts in keeping class members informed and united.

Class Gifts

At this point in a busy program, Alan Douglas, BSc(Agr)'58, announced a commitment on the part of the Class of Agriculture and Home Economics '58 to support faculty development and research through a class gift. He also noted that following the luncheon, the Class of '58 would hold a special tree planting ceremony outside Harrison House as a memorial to their classmate Rolly Brunet.

Dr. Buckland acknowledged and thanked the Class of '53 for their support in donating six cedar benches installed outside the Macdonald Stewart Building - an addition that greatly enhances the beauty of the campus.

Closing Remarks

With the program complete, Dean Roger Buckland expressed his appreciation for the tremendous attendance and enthusiasm at this year's Reunion. In order to see first hand the exciting new developments taking place at Macdonald today, Dean Buckland encouraged graduates to take part in the many open house visits, tours, and displays as part of Reunion Weekend '88. Dr. Buckland concluded by indicating that it is in no small way due to the enormous support and assistance of graduates that has helped make Macdonald the first class college it is today! ■

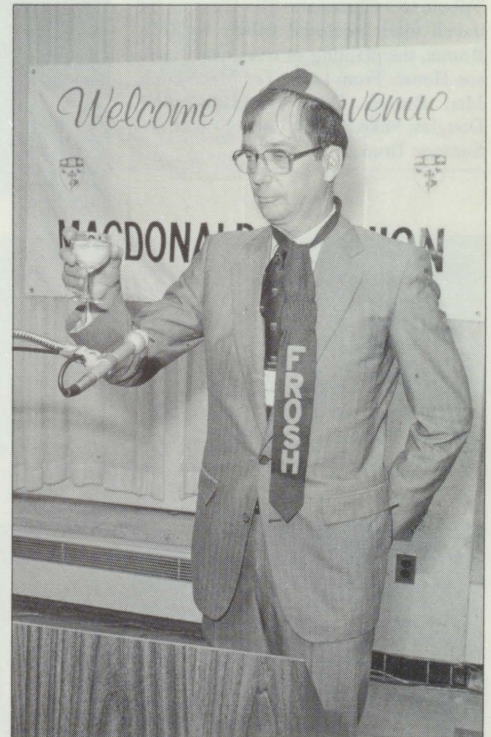
The 50th anniversary class members of Agriculture and Household Science 1938 assemble for a class photo. First row, 1 to r, Helen Hamilton, Betty (Seifert) McDonald, Kay (Munn) Robertson, Edith (Shaw) Marshall, Marjorie (Mitchell) Abel, Margaret (Armitage) Martin 2nd row: Fran (Graham) Blenkhorn, Roberta (Robertson) Kinnear, Norman (Joey) Pope, Allister Blenkhorn, Eric Burnell-Jones. 3rd row: Donald Hamilton, Donald F. Stewart.



Dean Roger Buckland, BSc(Agr)'63, toasts the anniversary classes of 1938 and 1963.



Bryon Beeler, BSc(Agr)'58, toasts Macdonald.



The Class of '58 congregate for the tree planting ceremony.

Reunion '88



▲
Tribute to a Classmate: The Class of '58 unveil their memorial tribute to Rolly Brunet, the planting of trees near Harrison House. From l to r: Ted MacNintch, Mrs. Brunet, Dean Buckland, Alan Douglas, Mike Brunet, Linda Brunet, and Suzanne Brunet.



▲
The spirit of '68! The power behind the great Class of '68, l to r, Celia Moodie Topping, Stephen Casselman, and Sheila Saxe Greenspoon.



▼
The graduate from the furthest distance: Kay (Munn) Robertson, BHS'38 (Australia), and President Jean McHarg, BSc(HEc)'60.

A busy day! Mac grads and friends enjoyed a party in the CC Lounge on October 1st hosted by former Mac student Anna Whitton. Proceeds from the evening went to the Sandra Letendre Memorial Foundation. In for a holiday from Vanuatu, Jim Currie, Dip'70, BSc(Agr)'81, is welcomed by Debbie Gilmer, BSc(Agr)'77.

▼
Class of 1943 wins the Honour Shield for best registered graduate participation. Bob Orr, BSc(Agr)'43, and Trinkie Coffin, BSc(HEc)'62, Chairman, Reunion '88.



Beyond These Gates

Profile: Willis Hooker, Teacher Extraordinary

by Hazel M. Clarke

Where are the others? Agriculture and Food Science 1973 represented by, l to r, Fred and Ruth Waddy, Jennifer Lloyd-Smith, and Anton Angelich.



Dip '78's Hugh Maynard, r, receives the trophy for the year with the highest percentage of Dips in attendance from Diploma Association President Angus MacKinnon, Dip'84.



A Diploma Reunion also took place at Macdonald on October 1st. Dip'38s, in to celebrate their 50th, received commemorative pins from Dean Buckland and Dips from many other years also attended the festivities. Seen here is Jean McHarg, Macdonald Branch President, John Grose, Dip'60, Ruth Grose, DipEd'60, Trinkie Coffin, Chairman of Reunion '88, and Basil Kelly, Dip'54.



Also enjoying the party in the CC were, l to r, Donna and Rick Walter, BSc(Agr)'76, Ginger Stones, BSc(Agr)'77, and Judy and Ian Walter, BSc(Agr)'73.

Continued on page 46

Beyond These Gates

Profile: Willa Hooker, Teacher Extraordinary

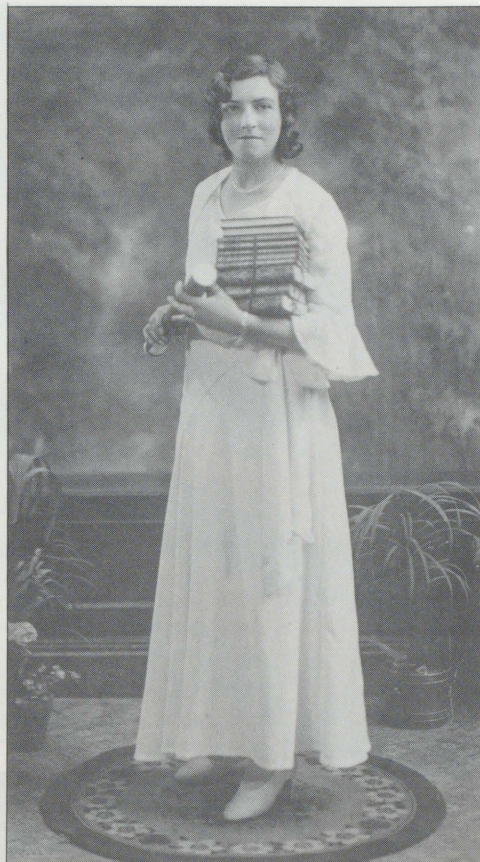
by Hazel M. Clarke

Willa Hooker - wife, mother, grandmother, community worker and leader, hostess, friend, and teacher extraordinary - an amazing woman who has influenced many and continues to do so as she cheerfully and enthusiastically walks that extra mile.

Time has never had a chance to catch up to Willa (McNeil) Hooker of Ormstown, Quebec. At the age of four she was taken to school for the day. She went back the next day and 11 years later she had completed her schooling and was ready to come to Macdonald but Macdonald wasn't ready for her. She was too young! She's still too young and energetic for most of us to keep up with, but there are hundreds of her former students, members of her community, and her family and friends who have benefited from her endless energy, enthusiasm, hard work, and dedication to the many causes she has worked for. Ask Willa to talk about the children she taught; you could fill a book with her tales, all told with love and affection. Ask her to tell you of the recognition she has received; it takes gentle but firm persuasion to get information to fill even a few lines.

Though she has been involved with many different groups of people, young and old, one feels that, apart from her family, Willa's real love was for the young boys and girls that passed through her life and her classrooms over some 26 years of teaching, interrupted for a time when she married and raised a family.

Willa was born on her grandfather's farm in lower Ormstown and, as the school was on his property, she didn't have far to go. The teacher was Margaret Hooker, Mac's 15, her future sister-in-law, and she took her to school when she was four. That same year she met her future husband, Alan, who was then 11 and had come to take his sister home. The story goes that young Willa took Alan to the barn to see some kittens. Alan tried to impress her by showing off on the swing. He tried a little too hard and fell off! But he stayed in the picture and he and Willa have been married for 54 years with three of their four children Lyndon, Brian, and Mary (Trinkie) and, to



In 1930 Willa McNeil came to Macdonald to get her Elementary Diploma. On graduation day she received two gold medals and leather-bound books for coming first in her class.

date, one granddaughter, Judy, coming to Macdonald College.

Finished school at 15 and not able to study until after her 17th birthday, Willa spent the time waiting to learn how to teach by teaching!

"I taught in a one-room school in Louisa near Lachute and then in Gore in the Huntingdon area," Willa recalled. "There was a teacher shortage and until I got there Louisa didn't even have a teacher. It was a marvelous experience. I was so fond of all those people. I helped with the milking and other chores for the family I was boarding with. I would often walk a mile or so home with some of the children. Their mothers would make a spe-

cial supper, and I would stay overnight and then walk back with them in the morning. While the mother made lunch for her children she would make one for me as well. We put on a concert at Christmas time and had plays, and all the young people in the area helped. Willa remembers that she made \$50 a month and said she never made less than that. When we had examination day in June my mother came to visit and I remember, too, that Alan also came while he was on a hunting trip. He allowed the boys to use his gun to shoot tin cans off a post. No doubt that was against the rules," she chuckled.

Possibly also against the rules was telling a boy that he was expelled, but Willa did just that. There was no organized supervision during the lunch hour, Willa recalled, and one day when she returned to school after about half an hour, the children all ran out to meet her telling her that one of the boys had tried to choke a girl. "They disliked each other and had got into a scrap," Willa said. "I got up on my little platform, looked at the boy and said, 'you're expelled!' and off home he went." When she met with the parents, they asked when he could return to school. "I didn't know what to do, but as it was Thursday, I said I thought Monday would be a good day." The boy had been punished and told that if he didn't behave he would have to go to work. He never stepped out of line again. Discipline could have been a problem for the young teacher as some of the boys were the same age or older than Willa, but, fortunately, they were no trouble and often helped her. When one of her students from Louisa married and had a family, a daughter was named Willa after her.

Finally, she arrived at Macdonald College in 1930. As money was scarce, Willa decided to get an Elementary Diploma which took four months. She later came back to summer school for four years to get her Intermediate Diploma.

As Willa had already been away from home, she found some of the rules and restrictions of life at Macdonald a little unusual. "We weren't allowed to lean out of the windows and

Diploma Corner

Mini Reunion/Mac Reunion

talk to the boys. We could go to the village between 4 and 6 o'clock but we had to be back inside the gates by 6. We couldn't be outside the building after 8 nor outside our bedroom after 10. I remember these rules because I was on the house committee and would have to question anyone found in the halls. I also remember the chocolate cake in the Hudson's Bay House in Ste. Anne's! It cost 10 cents and we would have done almost anything to get money for a piece of that cake."

After Macdonald Willa took a teaching position at the Ormstown High School (now Ormstown Elementary) "I taught Grades VI and VII in most subjects except French. I often had double classes and can remember one occasion when my double class became 52, and they couldn't all get into the room. I had as many as 36 in one class. Willa stopped teaching in 1934 for a very good reason. She got married and in those days, married women were not allowed to teach.

Alan Hooker and his brother had been in partnership raising foxes since 1928. Each had a ranch and some 50 or 60 females. As Alan was the fox inspector for the Province of Quebec, Willa often had to look after the animals when he was away. She also did a lot of entertaining for potential buyers who were always dropping in. One of the perks was being able to travel through a great deal of the province with Alan either when he was inspecting or when he was showing animals at the fairs. As her mother lived with them she was there to look after the children. But styles change and when wearing fox furs was no longer fashionable and there wasn't a good market for foxes, Alan got out of the business and worked for Vilas Furniture company until he retired.

There was a shortage of teachers when she was 15 and again in 1948. David Munro, the Principal at Ormstown, told Willa that he was looking for a teacher and couldn't find one. Did she know of anyone? She jokingly told him "I guess I'll have to go back myself."

Willa was happy to be back teaching. "There was always somebody that you could make

the day better for. Somebody that got teased on the playground; kids at parties that would cry because they weren't asked to dance. I felt close to those children and tried to help them," she said. "Teaching takes patience and a sense of humour helps, too. I used to get some of the special children who couldn't do class work at all. I remember one boy who had been in a correctional school and would be allowed to live in a foster home in our area if I would take him in my class. I did and, despite differences and difficulties, we got along just fine and he told me that was the first time that anyone ever kept him in school all year."

Willa pointed out that there were lots of extra curricular activities: teachers were needed for field days, bus trips, dances at the schools. There were rewards, too, like having a former student, no matter what age, say with pride, "she was my teacher! On one occasion, going to the circus the bus driver said, "Mrs. Hooker has taught everybody in this bus." The children said "not you, too?" He replied, "Oh yes she did."

Willa said that one of the nicest things that ever happened to her was being given a teacher's award - the Order of Scholastic Merit at Teacher's Convention at the Queen Elizabeth Hotel in Montreal. She received it in 1968, the year she stopped teaching. Stopped, that is except for a little supply teaching for the emotionally handicapped.

If the school children rarely had to say "Mrs. Hooker couldn't or wouldn't," then that also applied to her own family. Trinkie said the house was never empty and there always seemed to be at least one extra person at the table for a meal. When they were at college, the boys often brought friends home. Following in their mother's footsteps, both Lyndon and Brian came to Macdonald and Willa recalls one particular occasion when Brian was ill and was unable to be at Macdonald. "Lyn phoned to say a few of the boys were coming out to see Brian, and when I asked him how many, he said 'oh about 12!' Luckily I had a frozen turkey I could use." One boy from British Columbia spent five Christmases with the Hooker family.



Willa Hooker has attended several convocations at Macdonald. In 1987 it was for her granddaughter Judy who was receiving her BSc(FSc). From left to right: Trinkie Coffin, son Brian, daughters Judy and Tricia, Willa and Alan Hooker.

Beyond These Gates

Profile: Willa Hooker

by Hazel McNeil

Another of Willa's favourite stories about Lyn and Macdonald - and she says there were many she could tell - is the time he told her early one morning that he had told a girl at college that he was pretty sure she would make her graduation dress as she hadn't got it to the dressmaker soon enough, and he added, "the material is down on the sewing machine!" The next day Willa and the girl cut out the dress and sewed it up but before it could be finished the girl had to head back to college as she didn't have late leave. Lyn took it to college; the girl tried it on and turned up the hem. Lyn brought it right back to his mother and before she went to bed she hemmed it. It was taken back to Macdonald the next morning for graduation. Willa's conclusion: "You live through it all."

Lyndon graduated BSc(Agr) in 1959. Brian came to Macdonald for two years before going to the veterinary school at Guelph. Illness interrupted some of Brian's studies while at Macdonald and, regrettably, he died in 1963, some months after becoming a veterinarian in 1962.

The fourth member of the family, Alanne, went to Bishop's to study Science before transferring to Queen's. Willa remembers coming to Macdonald to watch Mac play football against Bishop's and Alanne was at the game. Someone asked Willa who she wanted to win. "We've invested an awful lot more money in Macdonald College than in Bishop's," she exclaimed, "They had better win!"

After graduating BSc(HEc)'62, Trinkie taught home economics at a vocational school in Summerside, P.E.I. She married Garth Coffin, BSc(Agr)'62, and now Chairman of the Department of Agricultural Economics, in 1964 and they went to Connecticut where Garth did his graduate work. Trinkie is now teaching Home Economics at West Hill High School in Montreal.

Apart from community and church work, she was Secretary for the Macdonald Branch of the McGill Graduates' Society and has been responsible for Reunion the past two years.

Trinkie and Garth's daughter Judy came to Macdonald, majored in Food Science and graduated in '87. Judy is now down in Prince Edward Island working and preparing to begin studies in Commercial Design in September 1989. Judy's mum and dad have a country place on the Island as do her grandparents.

"I have been married to my husband for 54 years," Willa said, "and I have never sat with him in church in Ormstown because I sing in the choir. I am, however, able to sit with him in Prince Edward Island." Of course, back in Ormstown she has done Sunday School work, and at the moment is treasurer of a missionary group and of the memorial fund, and works with the auxiliary.

Although she finished teaching in 1968, Willa is still thinking of the things she will get around to doing when she retires! Willa is not a Charter Member of the Ormstown Women's Institutes but joined the year the Ormstown branch was formed. Her mother was also a member of Ormstown and her sister Hazel is a member of Aubrey-Riverfield. An active member, she has held most positions in the branch. She has the members for lunch at the Lake St. Francis cottage each summer and also helps when the members entertain the teachers. This annual event is particularly special this year as Ormstown is celebrating its 50th anniversary and former teachers as well as present ones along with members from other branches and, the county and provincial executive will be invited to attend.

Shortly after the war a War Memorial fund was established, and, after much discussion, it was decided that serving meals at the Ormstown Fair would raise some funds for repairs on the skating rink. Willa, was president of the women's auxiliary at one time.

Another pet project was helping to raise funds for the much needed Barrie Memorial Hospital. She was on the board of directors as well and the women's auxiliary and delighted not only in receiving large donations towards the building but the 25 and 75 cent ones as

well. "Many could barely afford to give even that amount, but I would often arrive at a meeting with bags of small change," she recalled.

Since retirement one of Willa's favourite projects has been working with the Chateauguay Valley Association for the Mentally Retarded, of which she is president. Seven of her group, mostly adults, are helping out in the school cafeteria by folding napkins, putting fruit in dishes, carrying trays for the tiny children, picking up trays, and so on. The Huntingdon Academy had its 135th reunion this past summer and the group was going to work in the canteen. The Association raises its own money and the people in the community are extremely generous in providing both money and gifts.

At a Walshaven Arts and Crafts special meeting earlier this year Willa Hooker was named Woman of the Year. She was presented with a corsage, a rose bush from the members of the choir, and a plaque that reads: Citizenship Award 1988, proudly presented to Willa McNeil Hooker in grateful appreciation of her contribution to our community."

In September, Willa received an Air Canada Hearts of Gold Award. This Award has been a nationwide effort by community newspapers and Air Canada to recognize the many individuals who have made a contribution benefiting others within a community or an organization. Nominations for the award were sent in by the public.

Willa attends the Christian Women's group and recently did a special program on "Entertaining." She goes to fitness classes twice a week, enjoys working with her houseplants, and entertaining at home. "Alan and I both love company," she said. She loves her family; she also loved her students.

"One day I stood at the blackboard," she told me, "and said 'how lucky I am to be teaching. I absolutely love it. There isn't anything I would rather be doing. I can't ever remember a day when I wished I wasn't going to school.'" How fortunate were her students!

Diploma Corner

Mini Reunion/Mac Reunion

On Friday, May 26, 1988, five men, who were friends at Macdonald in 1938, along with their wives gathered at the home of Bob, Dip'38, and Audrey Taylor in Elmwood, Ontario. Those present were Ralph Edwards, Dip'38, and his wife Pearl of Escuminac, Quebec. Gerry Sprigings, Dip'38, and his wife Greta from Bloomfield, Ontario, Stuart Merrill, Dip'39, and his wife Alice of Barrie, Ontario, and Keith Rose, Dip'39, and his wife Audrey from Gowanstown, Ontario.

Back in 1938 these boys were all from Quebec: Bob from Ayer's Cliff, Gerry from North Hatley, Ralph from Escuminac, Keith from Sherbrooke, and Stuart from Sawyerville.

After leaving Macdonald Bob spent several years working for the National Film Board and, due to illness, took early retirement but is still active in his church and garden. Gerry has farmed at Bloomfield since his discharge from the RCAF and, although his son Barrie has taken over the farm, dad's help is still appreciated. After his discharge from the air force Keith also farmed in Sherbrooke, until nine years ago when his son Peter bought his farm at Gowanstown, and Dad moved next door to help with those Ayrshires. Ralph



Enjoying the mini reunion are left to right, Ralph Edwards, Gerry Sprigings, Bob Taylor. Standing, Keith Rose and Stuart Merrill.

farmed for a number of years on the home farm, but he has now turned the reins over to the third generation: his son Steve. Stuart also

spent a number of years farming but when all his girls went off to college he bought the general store in Bulwer. For seven summers,



Our thanks to Clarence Stevenson for sending the Diploma '38 photo (above left). Several Diploma '38 graduates attended their 50th Reunion at Macdonald on October 1st. They included: Gerry Sprigings, Ralph Edwards, Clarence Mosher, Alex McCaig, Jim Hammond, Bob Taylor, Clarence Stevenson, Roy Simmons, and Thomas Quinnell.

Alice ran the store while Stuart worked in the greenhouse at Bishop's University in Lennoxville. He then worked full time for two years and was in charge of growing the plants for that beautiful campus. In 1983 son-in-law and daughter asked Alice and Stuart to go to Barrie to live with them.

On the Friday of the Mini Reunion a wonderful day was spent reminiscing and looking at old pictures and taking new ones. In the evening everyone attended a smorgasboard at the Hanover Inn, returning to the Taylor's for a special cake, more picture taking, and a sing song.

On Saturday Pearl and Ralph left for Goderich, where they attended the wedding of their "home town" minister. Stuart, Gerry and Bob went to Holstein to attend the launching of R. Alex Sim's book "Land and Community." The launching was done by Dr. Mark Waldron, also a Macdonald graduate and now at Guelph University. Later these men and their wives were the guests of the Roses at the Church's annual roast beef B.B.Q. Then everyone went home with them to look over those Ayrshires.

All in all, different couples spent a week together and everyone wondered why they had waited so long.

Many heartfelt thanks are due to Bob and Audrey for planning and hostessing the event. The idea for this reunion was born at the 20th Dip '66 Reunion held at the home of Jack and Jo-Anne (Merrill) Duckworth.

Our advice to other classes is: get busy! It is definitely worth the planning and the work.

P.S. We had another reunion! On October 1st, the three 50-year grads, Robert (Bob) Taylor and his wife Audrey, Gerry Sprigings and his wife Greta, and Ralph Edwards attended the Reunion banquet at Macdonald College where they were presented with their 50 yearpins. Stuart and

Alice Merrill also attended the celebrations. In the evening we spent time with Mr. and Mrs. Wm Hammond when stories were exchanged and pictures shown.

Editor's Note: I would like to pay particular thanks to Alice Merrill for sending me the original article on the Mini Reunion and for kindly sending along, at my request, a P.S. after her visit to Macdonald College.

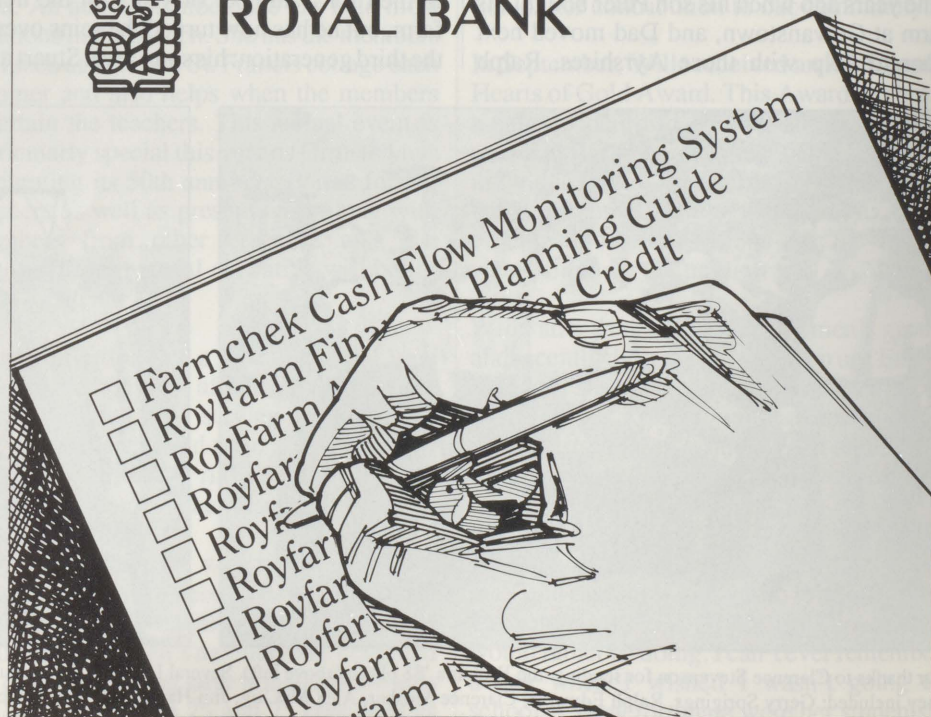
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ROYAL BANK





Quebec Women's Institutes

FWIC Convention

"Shaping Our Tomorrows Today" was the theme of the Federated Women's Institutes Convention held in June at Memorial University in St. John's Newfoundland. It was a pleasure for me to prepresent the QWI as Junior Director and to meet many of the approximately 800 delegates and husbands from across Canada. We were treated to warm hospitality by the people of Newfoundland. The opening ceremonies were most impressive with the presidents from all the provinces coming in with their flags. They were preceded by the Newfoundland mascot - a beautiful black Newfoundland dog, Novelle, followed by a Black Watch band of pipes and drums. We also enjoyed bus tours, lobster boils, craft displays, a concert "Jigs Dinner," and the closing banquet. A fun time at the Newfie "Screeching In" was a surprise for the organizers as well as the visitors.

Speakers included: Dr. Margaret Fulton, Dean of Mount Allison University, Dr. Ellen McLean, President of the ACWW, Yolande Calvé, Area President, ACWW, for Canada, Dale Dewar, Deputy Minister of Agriculture for P.E.I., Dr. Harold Kitchen, Ministry of Education for Newfoundland, Muriel McDonald Finnigan, N.S. business woman,

Dr. Claire Bethune, medical doctor on staff of Memorial University, Sylvie Gold, President of the Status of Women, Grace Sparks, a Newfoundland actress and member of the National Advisory Council on Ageing. Each, along with our President Beatrice Reeves, challenged WI members to accept responsibility for our own futures and to lobby governments, both federal and provincial, to do something towards the needs for education on agricultural awareness, needs of children and the elderly, family violence, and the lack of pensions for women. The speech by Dr. Kitchen brought out the need for lobbying the government for Canadians to have the right of control over the media because of the greed, sexual flippancy, alcohol, and violence we hear and see on radio and television.

Gwen Parker, Chairman, Education and Cultural Activities, presented the prizes in the Tweedsmuir Competitions. In the History category "Looking at My Locality," Beverley Morrison from Argenteuil County placed second.

Also of particular interest to QWI members is that the Inez Derby Prize is being replaced by the Muriel Bronson Prize. A donation has

been received by FWIC from Mrs. Bronson's daughter in memory of her mother who was a long-time member of Quyon WI in Pontiac County. Mrs. Bronson attended both QWI and FWIC conventions on many occasions. As a matter of fact, she hardly ever missed the QWI convention at Macdonald College.

On one evening the provinces united in providing hospitality and informative displays. Quebec provided samples of creton, maple butter, and cheese. Everyone ended up in the main dining room where Newfoundland was providing more hospitality and a marvelous time was had by all who attended.

The new officers were installed by Bernice Noblitt. The new FWIC President is Mrs. Jennie E. McInnes of Pictou, Nova Scotia, and the President Elect is Mrs. Jacquie Linde of Williams Lake, B.C.

The closing banquet was held at the Hotel Newfoundland. Following the meeting good-byes to many old and new friends were said. We had a great week together and as they say: It was some good - Yupp it sure was!

Evelyn Duff

Evelyn Duff
Provincial
Agricultural
Convener



I went to Shawville High School, then to Drummond's Business College, worked for Producer's Dairy for 1 1/2 years and in the local hospital office for two years before I married in 1955.

My husband Donald and I have farmed in Bristol since our marriage. We are dairy farmers with Registered Holstein cattle, and in 1978 we were awarded a Master Breeder Shield (the highest award for a breeder). Our son John farmed with us until his death on June 9, 1985. He was 28 years old and died of a farm accident.



Quebec delegates to the FWIC Convention in St. John's, Newfoundland.



We have one daughter, Susan Jane, who is married and has two little girls: Jamie Dawn (4 1/2) and Jenna Lyn (2 1/2). Doug, her husband, works for Bell Canada.

We are dispersing the cattle this December 5th. It is possible that Doug and Jane will move to the farm to keep registered quarter horses, and we will start to take it easier, I guess!

I joined the WI in 1963, mainly because of the encouragement from my dear mother-in-law. Don's mom was the very first secretary of Wyman WI when it was organized on March 3, 1913. I am now secretary of the branch for the second or third time. I have been through the convenerships and have been president at least twice, have been county secretary, publicity convener and president and received a Life Membership in 1985.

My interests are: home and family and the community. Don is a councillor and, because he is pro mayor and our mayor's wife works out of the home, I get called on often to help at social functions for the community. My church is important to me and I help in Sunday School, setting up the communion, United Church Women, and Bible Study.

Another WI member and I take the farm truck loaded with clothing, food, and furniture to a transition house for battered women in a town nearby in Ontario. We have just had a study done by the CLSC and they have found that 10 per cent of the people at this home are coming from the Pontiac; therefore, it is likely that a place will be found here, and I hope to be involved in helping there.

FWIC Cookbook

The new FWIC cookbook "Cooking Collections - Canadian Feasts from Land and Sea" is off the press and looking great! Gorgeous colour, luscious recipes, and lots of information on traditional Canadian foods from across Canada. It was a hit at the FWIC convention, and I'm sure will be a popular item on your Christmas and birthday lists for family and friends. Here's just one of the

recipes; you're going to want to try them all! Please get in touch with your County President or me for price and ordering information. Payment and orders are to be sent to me at the QWI Office, Box 58, Macdonald College, 21,111 Lakeshore Rd., Ste Anne de Bellevue, Que., H9X 1C0.

Alex Jenkins
QWI Secretary

Cranberry Squares (from Nova Scotia)

Base

1/2 cup	softened butter	125 mL
1 cup	flour	250 mL
2 tbsp	icing sugar	25 mL

Filling

2	eggs, beaten	2
1 cup	sugar	250 mL
1/2 cup	flour	125 mL
1/4 tsp	salt	1 mL
1 tsp	baking powder	5 mL
1 tsp	almond flavouring	5 mL
1 tsp	vanilla extract	5 mL
1/2 cup	chopped dates	125 mL
	OR raisins	125 mL
2/3 cup	cooked cranberries	150 mL
1/2 cup	shredded coconut	125 mL

Icing

1/4 cup	butter	50 mL
2 cups	icing sugar	500 mL
1	egg yolk	1
2 tsp	milk	10 mL
1 tsp	almond flavouring	
	OR vanilla extract	5 mL

Combine all base ingredients and press into a 9 X 9" (2.5 L) baking dish. Prepare filling by combining the ingredients in order given. Spread over base and bake at 350° F (180° C) for 50 minutes. Prepare icing by beating butter until soft. Gradually add sugar, blending until creamy. Beat in egg yolk, milk, and flavouring. Adjust sugar as necessary for good consistency. Spread icing over cooled square. Yield: 9 squares.

SAFETY FIRST

by Elsie Prevost

A Canape Caution

Most objects people swallow by mistake cause little harm. If an item is small and smooth enough to get past the teeth and tongue, it is likely to finish its voyage uneventfully. But there are exceptions. For example, the Journal of the American Medical Association reports that toothpicks commonly cause injury. Once swallowed, a toothpick may pierce the intestine and lodge elsewhere in the abdomen, where it can produce a life-threatening abscess.

The precautions to take are obvious. Toothpicks should be recognized as a hazard when they are used to shape food (such as stuffed cabbage). People at highest risk of injury include anyone wearing dentures and those who have had an alcoholic drink or two.

In the same vein (pardon the pun!) the removal of bay leaf from any dish, before serving is imperative. As this, too, could create a serious hazard.

HANDICRAFT COMPETITIONS - 1989

J&P COATS COMPETITION

1. PICTURE - Done in counted cross-stitch using Aida cloth. Not framed. Size optional (8x10 ins. minimum), using Anchor embroidery cotton. Attach flossbands (labels) and samples.
2. TATTING - Set of 4 varied Christmas tree decorations using Southmaid, Green Label or Cronita. Attach labels and samples of work.
3. KNITTING - Cross Country Ski Hat and Stocking Set (knee-high) using Red Heart yarn, available through Woolco and K-Mart stores. Fancywork either in the stitches, the pattern or colour is a requisite.



Newsmakers

On Campus

Sample of the technique with threads and wools used is required.

QWI HANDICRAFT COMPETITION

1. Sewing - Rag Doll
2. Weaving - 4 placemats (18x12) (46cmx31cm) and centrepiece. Attach samples of materials used. Polyester material. Washable.
3. Knitting - Lady's Knitted Sweater. Bold, freestyle design, yarn optional. Long sleeves. Attach samples of work and yarns.
4. Crochet - Lady's lined workbag with wooden handles - size, pattern, material optional. Attach labels, threads, sample of work.
5. Embroidery - Pair of guest towels (purchased, machine or hand-made), embroidered with Christmas theme. Attach labels and fabric samples used in design. Cross-stitch is acceptable.
6. Over 70 - Knitted slippers, design and wools optional. Attach bands and samples of wool used.

Prizes - J&P Coats - County level - 1st-\$5; 2nd-\$3; 3rd-\$2; Provincial - 1st-\$15; 2nd-\$10; 3rd-\$5. QWI Prizes - 1st-\$15; 2nd-\$12; 3rd-\$10; 4th-\$8; 5th-\$5.

For complete information, please contact your Branch Secretary.

Senator Bielish at Wyman WI

Senator Martha Bielish, long-time WI member from Alberta and a past President of the FWIC, was guest speaker at the 75th anniversary of the Wyman WI in Pontiac County last May. About 120 members, guests, and well-wishers attended the ceremonies held at the Bristol Community Centre at Elmside. Senator Bielish planted a tree by the entrance gate to the community centre and said, "as its branches and roots grow, the tree symbolizes

the QWI 1988 convention theme "reaching out." She also referred to the theme during her speech and gave the history of the Institutes in Canada. She concluded her remarks by presenting a certificate from the Senate extending congratulations and good wishes to Wyman. She also presented a picture of the Senate and a Canadian flag.

Other guests bringing greetings were: Jack Graham, Mayor of Bristol, who said how pleased he was that the WI now has a centre that can host WI celebrations and Barry Moore, M.P., who presented a certificate complimenting the members on their 75 years of participation in rural development. Several other greetings were read.

QWI President Lucy French presented Life Membership certificates and pins to Mrs. Eileen Miller and Mrs. Irma Trudeau.

Mrs. Isabel Graham introduced the 21 members of the branch which has two members with more than 60 years membership: Mrs. Cora MacKechnie with 65 years and Mrs. Nina Stewart with 64.



Mrs. Isabel Graham, left, President of Wyman WI, Senator Beilish, and QWI President Lucy French at the tree planting ceremony.

With the Branches

ARGENTEUIL Arundel heard a report by Margaret Batty, Canadian Industries, on a rare insect which preys on honey bees, threatening pollination and, consequently, our honey supply. This is an Asian mite that has appeared in several states in the United States (as close as New York state), and it will invade Canada unless steps are taken to deal with it. There is already an embargo on bees being imported from the U.S. **Brownsburg** Agriculture convener stated that farmers are being urged to make hay earlier than usual, for better hay and young plants contain more nutrients than old plants; this can end up a saving as less bulk is required to feed the cattle, and the quality of the feed is superior. A second and possibly a third crop may be obtained. **Dalesville-Louisa** (motto) Happiness is living by inner purpose, not by outer pressures. Members met at Lowe's Dairy to see how some of the products we consume daily are processed and made available for human consumption. Steve Lowe conducted a tour of the dairy and members watched the different processes the milk went through from the time it leaves the huge bulk tank until it is made into ice cream, etc. **Frontier** heard from Mrs. J. Marchand who spoke on social service and health, explaining the CRSSS and CLSC. A member, Miss Gloria Weldon, spoke of immigrating to Australia where she was employed as a teacher, staying for 5 1/2 months. **Grenville** listened as Cathy Charity of Hawksbury spoke about fitness, telling them things we should know and do in order to keep fit. **Jerusalem Bethany** heard several reports: the current events compiled by Mrs. Hay; the free trade issue; Mrs. Bell, Citizenship, read an article about the man who beat the tax man. **Lakefield** has put together a binder for arts and crafts patterns. Members will be asked to put patterns in it and members will be able to borrow patterns from the binder. **Pioneer** learned of the glacier break up in the Antarctic. The most recent iceberg, Berg 9, was so great in size it entirely removed the Bay of Whales where R.E. Bird established his first scientific station in 1928. So great is the amount of water it displaced that the earth's oceans are

thought to have risen about the thickness of ten playing cards. This ocean going monstrosity has been closely monitored by oceanographers and meteorologists concerned about the links between global climate, polar ice and sea level. **Upper Lachute (East End)** heard from Mrs. Pamela Oss, Editor of The Watchman, who gave an interesting talk about her work at the Watchman office.

BONAVENTURE Grand Cascapedia have collected bread tabs from throughout the county and have forwarded them to New Carlisle Girl Guides in support of their projects. President, Norah Hall, reports that she presented the Branch Bursary to Faye Geraghty at the Bonaventure Graduation ceremonies. **Marcil** are making an effort to keep rural post offices open and rural mail delivery continued. Rural Dignity, which has initiated a tour from both the West and East coasts of Canada, to collect cards for presentation to the Federal government, is providing a means for all citizens to make a statement. Contact any member of CASA.

BROME Austin Beth Champoux demonstrated how to make attractive artificial flowers out of odd bits of material. **Sutton** flowers were gathered and 75 corsages were assembled, one for each resident in the Sutton Foyer. These were delivered by some of the members and a few minutes were spent with each one.

CHATEAUGUAY-HUNTINGDON Howick Isabel Templeton, Education & Cultural Affairs, gave a brief biography of the famous Canadian humorist, Stephen Leacock. Shirley O'Hanlon, a guest, then added a delightful touch by dressing in period costume and recited two Leacock readings, "The Laundry Problem" and "Old Junk & New Money."

COMPTON Brookbury held a family supper. **Bury** observed Canada Day as members participated in a parade, entertainments in the park, etc. **East Clifton** had a member's daughter, on VCR, speaking from Edmonton on Cystic Fibrosis. **Sawyer's** members

entertained their grandmothers and had a speaker on the Quebec Farmer's Association.

MEGANTIC Inverness (motto) Compassion is the capacity to put love into action. Ann Wright, Citizenship & Legislation, reported that the federal government is spending \$110 million to clean up the St. Lawrence and \$1.5 million on advertising to urge the American visitors to join the fight against acid rain; minimum wage is going up on Oct. 1; Indians accusing the Quebec government of easing off in its opposition to pesticides. **Kinnear's Mills** heard a study on coffee and alcohol.

MISSISQUOI Cowansville Rita Scitowski, Health, listed seven warning points of Arthritis: S- swelling in one or more joints; E- early morning stiffness; R- recurring pain or tenderness in joints; I- inability to move a joint properly; O- obvious redness and warmth in a joint; U- unexplained weight loss, fever or weakness with above; S- sign and symptom of above which lasts for two weeks; SEE YOUR DOCTOR. **Dunham** Certificates of Merit Awards from Mrs. Gabrielle Bertrand on behalf of the federal government. Margaret Ellis for work done for the Historical Society and a book on history of Dunham and Myrtle Selby, a 50 year member of the Institute and contributions to the community. **Fordyce** prizes were given to Grade 3 students at Saint Leon for most improvement in English and at Heroes' Memorial Elementary School for most improvement in French. **Stanbridge East** a certificate was received from UNICEF acknowledging donation received and prizes were to be given to students attending Butler Elementary School in Bedford.

RICHMOND as a County project they have sought to obtain the Spiderman comic which deals with the issue of child abuse. After contacting Sun Youth and being told that they could not send out the number of books requested, Richmond county was not undaunted and eventually heard of a group from North Hatley, the Eastern Townships Citizens Concerned with Child Abuse (ET4C's). Through their representatives Ruth McKin-

nen and Judy McKintrick in co-operation with school Principal Richard Orgechowski of St. Francis Elementary with Mary Mitchell, a local CLSC nurse and Robin Fowler, Publicity for Richmond, they reviewed information and videos. As a result, Mary Mitchell showed the film "If It Happens To You" to the Level 6 students of St. Francis. The film dealt with strategies for sexual abuse made by Sunburst Communications. Since then, Ruth and Judy ran two information meetings for WI members and interested people. Also as a result of these meetings, some interested ladies will be attending a ET4C's Board Meeting. This will be a great development to the area as there is no representative on this Board.

SHERBROOKE Belvidere members showed concern for the health and welfare of people in the community and themselves by a discussion on dieting to include more fibre, sending cards and gifts, packaging cancer dressings. **Brompton Road** furnished cookies for a senior citizens' home and held a card party to raise money for their various projects and members enjoyed exchange visits with other branches. **Lennoxville** had a meeting devoted to agriculture, comments were made about farm subsidies - one of the items to be discussed at the Economic Conference in Toronto. Christine Robinson, guest speaker, who with her husband runs a dairy farm in the area, spoke of the newly formed local organization of farm wives. They are affiliated with "Women for the Survival of Agriculture." Some of their aims are: to be support for each other, to inform members and organizations about new government regulations, to educate children about agriculture, to have information days for themselves and anyone in agriculture. **Ascot** heard a talk by an organic farmer who has a market garden and orchard. By using compost, plants that deter insects, and companion planting, you can achieve good results without the use of commercial fertilizers, insecticides, or herbicides. **Milby** asks, "What if the farmers went on strike?" They held a rummage sale for funds to support community projects. ■

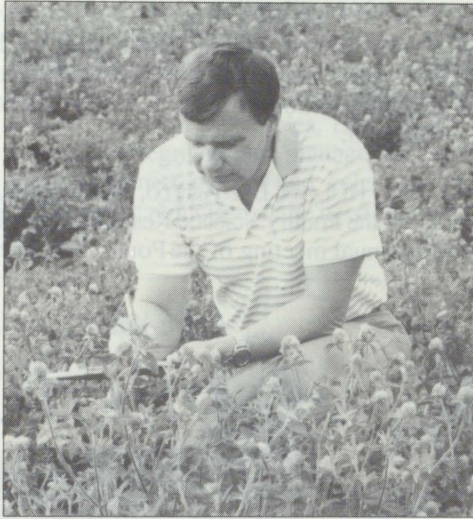
Newsmakers

On Campus

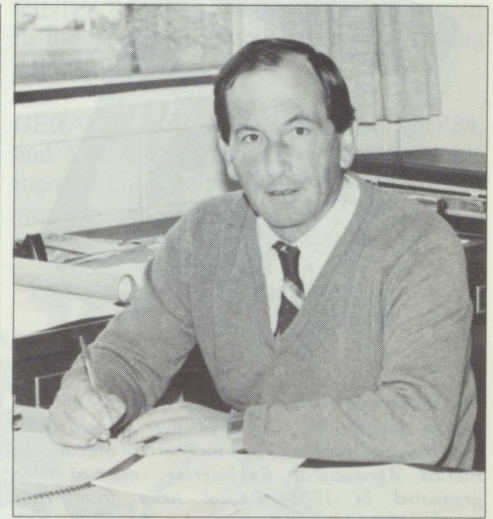
New Chairmen

Professor Bruce Coulman was appointed Chairman of the Department of Plant Science on June 1, 1988. He succeeds Professor Harold Klinck who retired and was granted an Emeritus Professorship at Convocation. Professor Guy Mehuys has accepted the position of Chairman in the Department of Renewable Resources. He is replacing Professor Rodger Titman who stepped down from the position in May.

ASTRID, BSc(Agr)'79, and DOUG NORQUAY have a baby brother, Jessie Daniel, for their two young daughters. Astrid is on maternity leave from her duties at the college farm and recently moved to Hudson when Doug, who recently graduated in



Professor Bruce Coulman



Professor Guy Mehuys

Theology, was assigned to a church in nearby Como.

Congratulations to ALAIN BEAUDRY, 3rd year student majoring in Agricultural Economics, who was the 1988 C.N.E. Scholarship winner. Alain has been a very active Association de la Jeunesse Rurale du Québec (AJRQ) member at both the local and provincial level.

DR. JEAN DAVID, who from 1972 to 1986 was Associate Dean, Student Affairs and Public Relations, was recently awarded the title of Commandeur de l'Ordre du Mérite Agronomique by l'Ordre des agronomes du Québec. L'Ordre President Raynald Giroux referred to Dr. David's "remarkable contribution to the teaching of agronomy and the development of horticulture in Quebec, as well as his ongoing work on behalf of agricultural and industrial producers and his involvement with his professional corporation."

Off Campus

ALLAN SAUNDERS, BSc(Agr)'47 has retired from the N.B. Department of Agriculture.

Among those honoured by the Canadian Seed Growers' Association for their contri-

bution to Canadian agriculture were DOUGLAS SLATER, BSc(Agr)'49, MSc(Agr)'51, cereal specialist, Truro, N.S., JOHN S. BUBAR, BSc(Agr)'52, PhD '57, plant scientist, Truro, and DR. CHESLEY SMITH, BSc(Agr)'54, horticulturist, Fredericton, N.B.

THOMAS KEITH MURRAY, BSc(Agr)'48, MSc(Agr)'50, PhD'57, was the recipient of the Canadian Society for Nutrition Sciences' Earle Willard McHenry Award at the Society meetings at Laval University in June 1988.

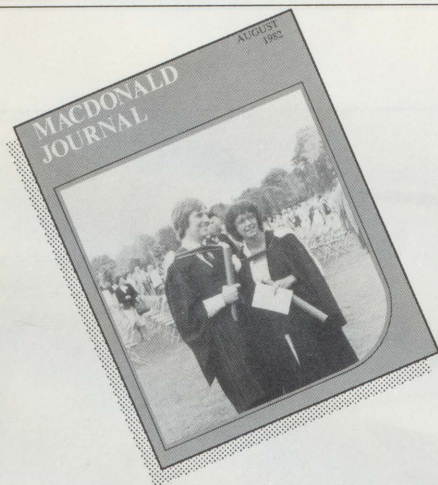
ARLINGTON MAIR, BSc(Agr)'50, has retired from Co-op Atlantic where he has been the Manager of the Agricultural Division since 1975.

ELIZABETH (LIBBY) M. WILSON, BSc(HEC)'55, was named winner of the 1988 Marjorie Thompson Flint Award, presented in May at the THEA Dinner and Annual Meeting. The award is presented to a home economist who has made a sustained contribution to THEA and who has shown outstanding accomplishments in the profession of Home Economics.

GEORGE MACKENZIE, BSc(Agr)'58, a former agricultural representative at Truro,



Macdonald-McGill hosts AIC '89. At the AIC meetings in Calgary this year, members were treated to tiny toy raccoons and a taste of fashion from another era when fur trading in Quebec helped to develop Canada. "Our little mascots went like hot cakes," Marcel Couture, Chairman of Publicity for next year's meetings, said recently. Theresa Greene and Jean Michel Valiquette, of the Diploma in Agriculture Program, took a glimpse of old Quebec with them to Calgary along with a warm invitation to come and enjoy a much longer look at today's Quebec.



The Macdonald Journal became a quarterly publication in August 1982. Our first cover showed Holly and Graham Drake who had met here at Macdonald, studied Agricultural Engineering, married, and graduated in 1982. Recent news from them announces the birth of their son, Ian, born August 12, 1988, brother for Laura (age 4) and Stephanie (age 2). Living in Swift Current, Sask., Graham is a Territory Manager for John Deere Ltd.

N.S., has been named Manager of Field Services, responsible for the ag rep section of the N.S. Department of Agriculture's Extension Services Branch. His role will be to coordinate, develop, and implement extension education programs throughout the province.

JOHN EATON, BSc(Agr)'59, has been appointed Manager of the Agricultural Division of Co-op Atlantic, a broker, manufacturer and/or supplier of feed and ingredients, farm supplies and equipment.

United Agri Products

In June of 1988 Pfizer Canada Inc. sold its Crop Protection Division to United Agri Products of Greeley, Colorado. United Agri Products, whose label is CLEAN CROP, is the farm chemical manufacturing and distribution arm of ConAgra, Inc., of Omaha, Nebraska. Recently appointed as General Manager of United Agri Products, Canadian Operations is FRANK REDDICK, BSc(Agr)'72. GREG HANEY, Dip'79, is General Manager in eastern Canada, and LARRY NEIL, BSc(Agr)'69, MSc(Agr)'71, is Marketing Manager in the head office in London, Ont.

KEITH MCCLEARY, BSc(Agr)'59, is now Chairman of the Ontario Grain and Feed Dealers Association. Keith is Vice President of Grain Operations at United Co-operatives in Chatham.

DR. BUD HULAN, BSc(Agr)'65, MSc(Agr)'68, received the Poultry Science Research Award at the annual meeting of the Poultry Science

Association held at Louisiana State University in Baton Rouge last July. This award is given to a scientist with an outstanding research record over the previous five years.

DAVID FAULKNER, BSc(Agr)'68, is on leave for a two-year period from his position as Director of Marketing and Extension with the P.E.I. Department of Agriculture. He will

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be Regional Director of Agricultural Development in Agriculture Canada's Charlottetown office.

JOHN F. ADSETT, BSc(Agr)'69, is taking educational leave from NSAC for studies leading to a PhD at the University of Saskatchewan.

JOHN SECORD, BSc(Agr)'69, has been appointed Operations Manager at Oseco's Brampton, Ont., headquarters. John had been Manager of Co-op Atlantic's farm supply department.

BARBARA HERMON BART, BSc (FSc)'75, sends news that she is working as a dietitian at the Nun's Island Medical Centre just outside of Montreal. She is married to an architect from Quebec City and "we have a wonderful 10-month-old son named Alexandre!"

RICK WALTER, BSc(Agr)'76, recently accepted a position with the federal Department of Industry, Science and Technology as the Senior Industry Development Officer - Biotechnology. Rick worked for the Department of National Defence for the past 12 years in various roles including Head - Natural Resources Management.

BARRY RUSSELL, BSc(Agr)'78, was appointed Manager of the Atlantic Dairy Livestock Improvement Corporation (ADLIC). Barry is married, has three children, and is living in Moncton.

DAVID BROWN, BSc(Agr)'80, has accepted a temporary teaching position - as a sabbatic replacement - at the Institute for Urban and Environmental Studies of Brock University in St. Catharines, Ont.

JUDY THOMPSON, BSc(Agr)'80, is a Nutritionist with the P.E.I. Department of Agriculture.

GUY BOIVIN, PhD'81, who is with Agriculture Canada, Saint-Jean-sur-Richelieu, Que., has been chosen by the Entomological Society of Canada as the recipient of the C. Gordon Hewitt Award for outstanding

achievement in Canadian Entomology by an individual less than 40 years of age. Guy has developed an extensive research program on the cultural and biological control of insect pests of vegetables. His contribution to an integrated pest management program for carrots, onions, and celery has led to a dramatic reduction in the need for insecticides.

CINDY ROETT, BSc(Agr)'81, is a partner in the "Green Thumb," a plant decorating company.

GERALD MACDONALD, BSc(Agr)'84, and SUSAN SMITH, BSc(Agr)'86, were married this past summer. Gerald has been working on his MSc here at Macdonald and is with a greenhouse operation in Ontario.



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Le Salon national de l'agriculture recently named the Drolet family of St-Raymond, Que., "La Famille Terrienne 1988. This farm family, who have won bronze and silver agricultural awards presented by the Quebec Ministry of Agriculture, were the Gold Medal winners in 1983. One of the members of this remarkable family is son FRANCOIS BSc(Agr)'84, who is married to JACINTHE AUDET, BSc(Agr)'84.

News from Dip Classes '83, '84, and '85

SUZANNE CLOUTIER, '83, and ALEX MCLEOD, BSc(Agr)'83, were married on June 18, 1988, and are now living in Nova Scotia. SERGE BREAU, '84 and Monica Muller, '85, are the proud parents of a little boy named Eric. ANGUS MACKINNON, '84, was honoured as an Outstanding Young Quebecer at the Alliance Quebec convention last May. JEAN MICHEL VALIQUETTE, '84, has taken a leave of absence from the Diploma Program in order to obtain his BSc degree here at Macdonald. CALVIN MCBAIN, '84, and Shelly MacDougall were married last December. JOHANNE LEVESQUE, '84 and BRIAN PEGG, '84, were married on August 20, 1988 and on

September 17, 1988, SYLVAIN LAVOIE, '84, married Martine Pouliot.

Deceased

FRANCES (CAMPBELL) SNELL, in August, 1988, at Bedford, N.S.

ELLEN JEAN (CAMERON) PORTER, BHS'34, on April 23, 1988, at Pictou County, N.S.

R. KATHERINE (MORRIS) VAN DER VOORT, BSc(HEC)'45, BSW '49, MSW'53, at Nepean, Ont.

NANCY (JACK) MATTERN, BSc(HEC)'50, of Waynesboro, PA., on August 22, 1988.

WALTER GRANT, BSc(Agr)'52, on September 23, 1988, in Truro, N.S.

W. ROSS ELLIOT, Dip'55, on October 7, 1988, in Montreal, Que.

LOUIS A. WALKER, BSc(Agr)'60 (lost address), reported deceased by classmates.

WAYNE C. GAGNE, BSc(Agr)'65, on May 23, 1988, at Honolulu, Hawaii.

DONALD GORDON TRENHOLM, BSc(Agr)'72 (lost address), reported deceased by classmates.

DR. DONALD MORDELL, former Dean of McGill's Faculty of Engineering from 1957 to 1968 died on August 8, 1988, in St. Catharines, Ont. Dr. Mordell left McGill to accept the position of President of Ryerson Polytechnical Institute. Dr. Mordell was Director of Research at the Gas Dynamics Laboratory here at Macdonald from 1950 until 1959. His son Jeremy graduated from Macdonald College, BSc(Agr), in 1968. Deeply involved in engineering education, Dr. Mordell was a training consultant in developing countries, and since 1975 served on the World Council of Engineering. He held the chair of the Commonwealth Committee of Engineering Education and Training until his death.

MARJORIE E. (DOBIE) MUNROE, wife of the late Dr. David C. Munroe, died on September 8, 1988. Dr. Munroe was the Dean of the Institute of Education at Macdonald College from 1949 to 1961.



Some of the Class of '48 at NSAC: back row, 1 to r, Keith Russell, William Smith, Val Swail, Bob Petch, Charles Petch, Roy Galway, Murray Templeton. Kneeling, 1 to r, James Laurie, Donald Brady, Albert Legrand, and Gordon Thomson.

The Mac Class of '48 at NSAC

A highly successful and enjoyable reunion weekend was held by the Mac Class of '48 late in July during the Nova Scotia Agricultural College annual reunion festivities. Some 30 graduates attended all or some of the functions and greetings were received from others. Special guests for the Friday barbecue were Herb and Mary MacRae (Herb is Principal of NSAC) and Peter and Marg Hamilton.

The barbecue was held at Swail's Shortt's Lake home. Don Cox did a terrific job of barbecuing a whole pig and 55 people enjoyed the evening. NSAC facilities were toured on Saturday and the group attended a reception and banquet as part of the official Homecoming Weekend. After the banquet the group held their own private '48 party. There was a reading of Charlie McTeer's 1948 Class Prophecy, many stories and a good old fashioned sing-song with Fred Rigden on banjo and Jim Laurie and Val Swail on mouth organ. Brunch the next day was a fine and fitting farewell for a good weekend. The Class of '48 are already thinking of a planning meeting in 1993 so as to be ready for a super 50th Reunion in 1998.

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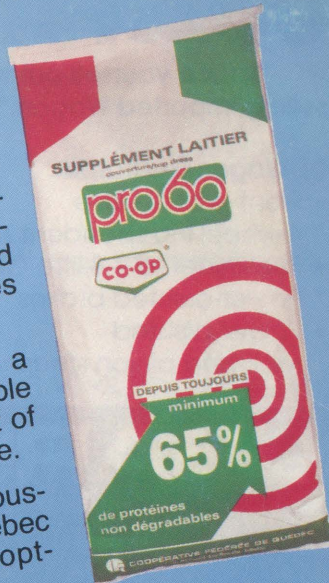
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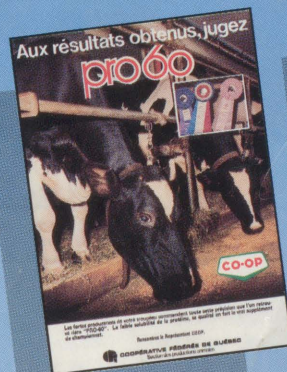
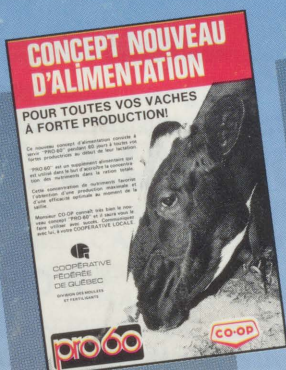
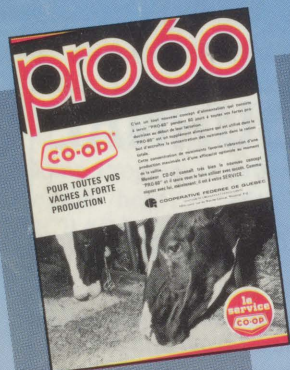
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